THE IRON AGE.

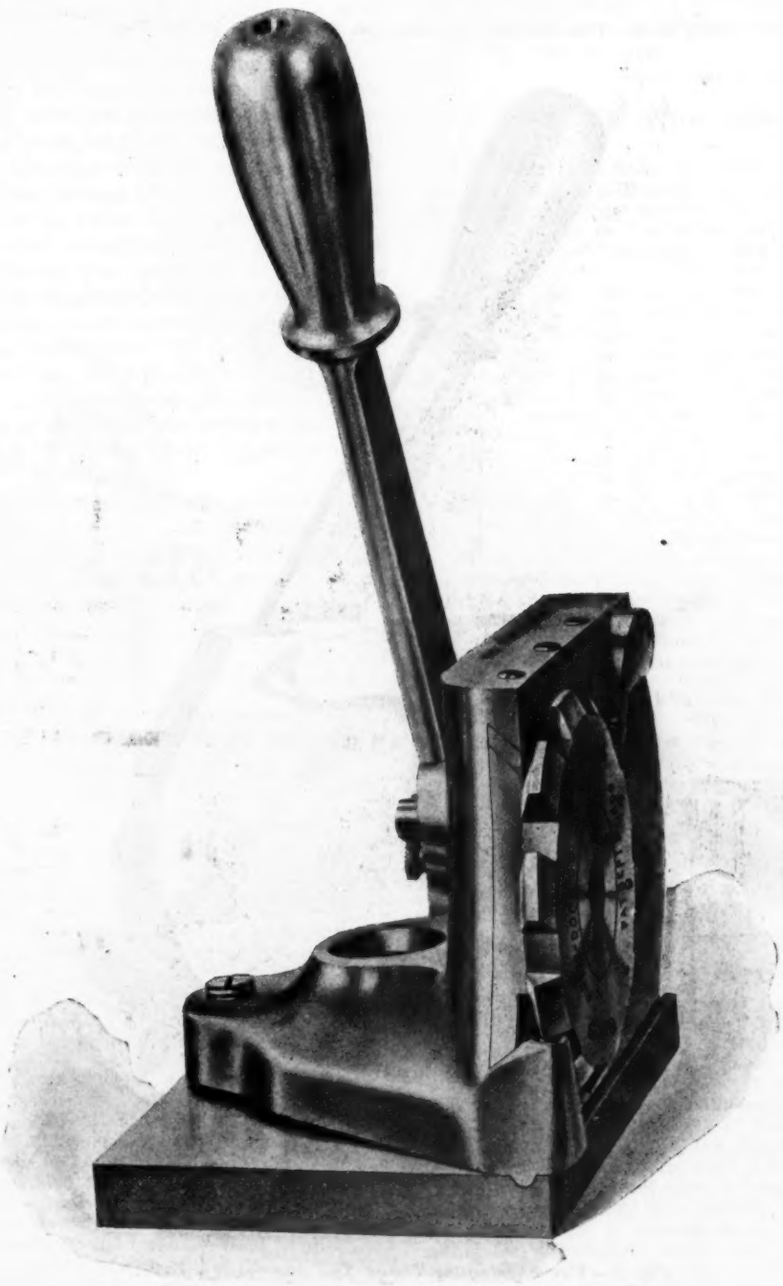
THURSDAY, MARCH 22, 1900.

The Dock Thread Cutting Lathe Tool.

All machinists know the difficulty of exact duplication by the regulation old style method of cutting threads on the lathe, the careful setting of the tool by use of the small thread gauge, the frequent sharpening to keep the point in shape, the patient care necessary with the best tool of single point and best lathe having cross slide stops galore, to cut a number of screws to fit a single nut.

The new tool is the invention of Herman Dock of Philadelphia. It dispenses absolutely with all care and skill, and by its use any lad able to reverse a lathe and place the work between centers can produce results equal to those of the oldest lathe hand, and that, too, at double the amount yielded in the old way.

The new tool consists primarily of a disk of steel, Figs. 1 and 2, having teeth on its periphery ground to the exact angle of the thread for which the particular cutter is designed. These teeth in reality form a series of tools, each of an increased radial length over the preceding, the increase in length being carefully designed so that each tooth or cutter removes a proportionate amount of stock, the disk of tools being mounted on a holder, as shown in the engravings.



THE DOCK THREAD CUTTING LATHE TOOL.

But two points are to be observed in setting the tool—viz., square the face of the cutter to the work or axis of the lathe and set the cutting faces as nearly as possible

to the center line of the lathe—after which the operation is as follows: Run the cross slide in until No. 1 cutter or tooth engages the work, when it is best to tighten the cross slide and any other loose part of the lathe to eliminate any slip (for the new tool makes the lathe work in earnest) and take a cut exactly the same as with the old style tool. At the end of the cut the lever on the tool holder is thrown back, which withdraws the disk from the work, automatically rotates it one tooth, the lathe is reversed, and at the beginning of the second cut the tool lever is thrown forward, which re-engages the disk with the second tooth presented to the work, and so on until the disk has made a full turn, when the thread is finished.

A brief examination of the cutter disk will suffice to show wherein lies the great advantage of the tool. As has already been stated the teeth really form a series of tools and each tool carefully ground on special machinery to the increase of length necessary to cut its proportion of the stock required to be removed to form the thread. Instead of the old way of doing all the work with a single point, slowly and tediously, governed by the judgment of the operator as to how deep each successive cut shall be made, we have a series of strong tools presented, each one cutting on a V-thread a frustum of a cone, as shown in Fig. 3, and each frustum growing narrower as the groove deepens until the last tooth is reached, which, taking a light cut, cleans up the

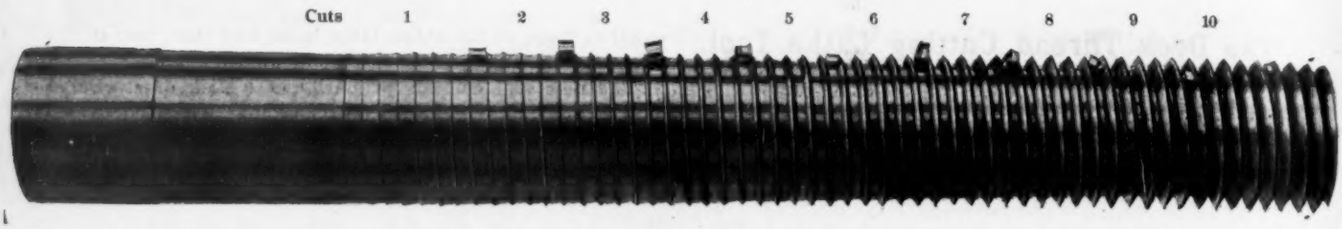


Fig. 3.—View Showing Successive Cuts Taken by the Thread Tool.

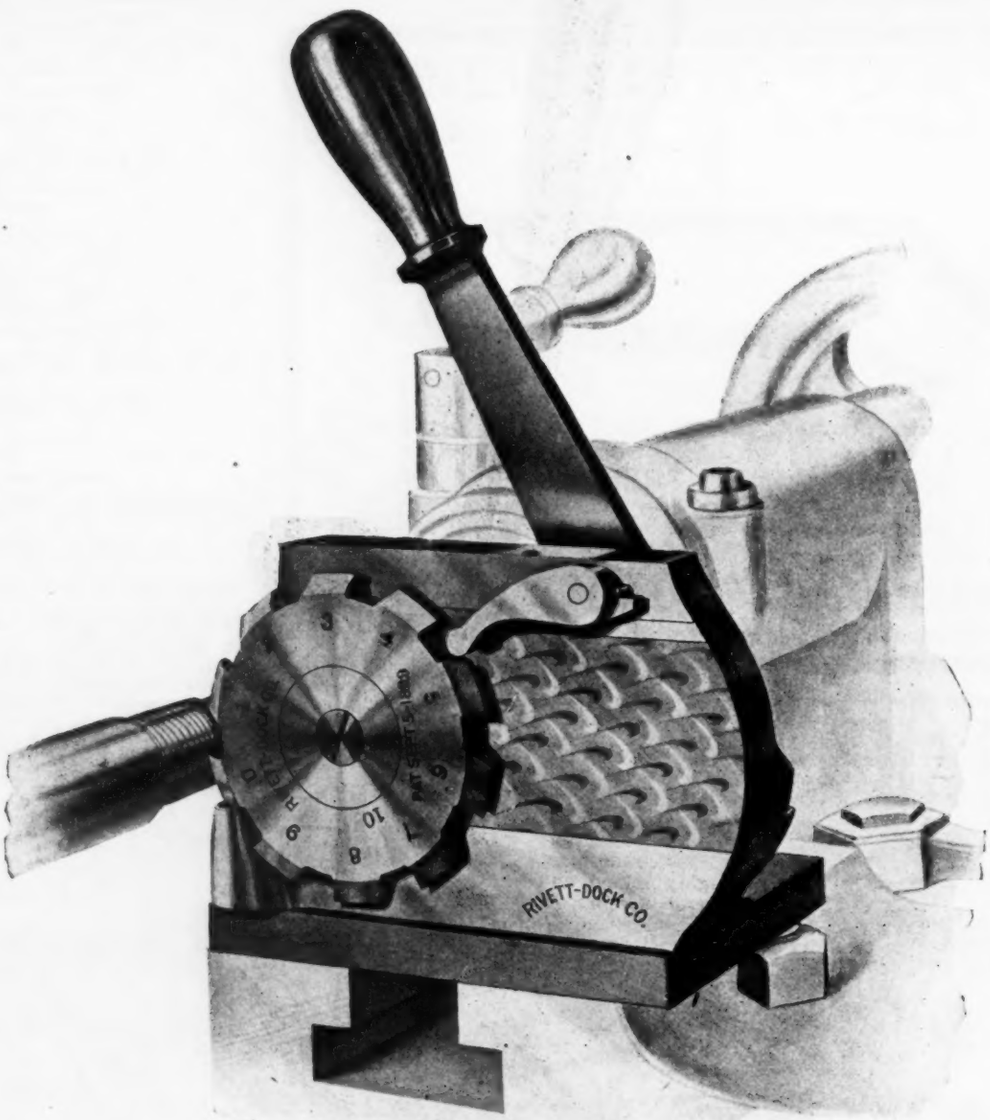


Fig. 2.—View Showing the Thread Tool Attached to a Lathe.

THE DOCK THREAD CUTTING LATHE TOOL.

thread exactly the same as the final cut of a single point tool. In other words, the teeth one to nine of a ten-tooth cutter rough cut the stock in heavy measured cuts, leaving the last tooth simply to clean up and finish the thread in precisely the same way as is done with the ordinary single point tool.

The new tool permits a much higher speed of the lathe, there being no fine point to be ruined by heating, the increase being about double the speed of the old way. Let any mechanic try to cut standard eight-pitch threads on 1-inch machine steel in ten cuts with the lathe running at the rate of 135 turns per minute, which is the regular performance of the new tool, and he will appreciate the meaning of the above expression. The tool does not require sharpening as often as the old one, once in several days being sufficient with use on machine steel. Then, as the cross slide and the holder are never moved, the cutter if taken off to be sharpened in the middle of a job is replaced with the certainty that its removal, sharpening and return to the holder will not involve the slightest variation in the shape of thread or finished size of the screw or in the duplication of any number. Again, as the angle of thread on the periphery of the disk is carefully ground after the cutter is hardened, the accuracy of the shape of the thread is not left at the mercy of a small thread gauge and grindstone or emery wheel. Following this comes the fact that the same thread gauge is dispensed with in setting the tool to the work, a 4-inch or larger square being used against the entire face of a 3-inch cutter. By means of the elevating screw at the right hand extremity of the holder the cutter can be given any rake necessary for any thread, either right or left hand, the holder proper resting and rocking on a rib directly under the center of the cutting disk.

Mr. Dock has associated himself with Edward Rivett, president of the Faneuil Watch Tool Company; David Huut, Clifton E. Wing, all of Boston, and others, forming the Rivett-Dock Company for the manufacture of the tool. The new company will have their general offices and shops at Faneuil, Boston.

Silicon in Ferrosilicon.

BY FRED. W. BAUER, JACKSON, OHIO.

A sample of ferrosilicon, which contained a very large amount of silicon, was recently sent to several well-known chemists for the determination of this element. The sample was pounded in a mortar, the hardening effect of the silicon itself being too great to allow drilling, until all passed through a very fine mesh sieve, after which it was cleaned, thoroughly mixed and a small amount sent to each of the chemists represented below. The object was not to produce results in support of chemical inaccuracy, but merely to obtain results from different sources; employing, as is shown, different methods for determining this element, when existing in such an unusual quantity as in this sample. This is a grade of iron not often met with by the chemist, and consequently no recognized method exists. It is needless to say that regular methods employed for silicon determinations in pig iron fail to give satisfactory results, so that changes in standard methods and entirely different means are required when working with this material.

The writer does not intend to advance any comments upon the results, or the methods used in obtaining them, as they are simply presented for the purpose of inviting opinions from any who are interested. But in order to especially call attention to a few points, a brief summary will not be out of place:

1. With two exceptions unlike methods were used in every case. Where the same methods were employed the variation was not greater than 0.06 per cent.

2. The two methods (Nos. 1 and 11) employing volatilization of silica produced the widest results, the difference in the methods being in the acids employed for solution.

3. Direct fusion of drillings (Nos. 6 and 8) in NA_2CO_3 gave comparatively higher results than fusion of residue from acid mixtures (Nos. 9 and 10), except No. 7, where HCl alone was used in dissolving.

4. The variation in results obtained by using bromine for the oxidizing agent (Nos. 3 and 4), as compared with fusion in sodium peroxide, is very small.

The names of the different chemists are withheld, their wishes not having been consulted. A sample of this iron can be had by any who desire it.

The results and methods follow:

1. Si, 16.68 per cent. *Volatilization of silica after evaporation in HCl and a few drops of HNO_3.

2. Si, 16.21 per cent. Direct fusion in Na_2O_2 in nickel crucible.

3. Si, 16.19 per cent. Oxidation of silicon by bromine in HCl solution.

4. Si, 15.90 per cent. Same as No. 3, afterward evaporation with silicon mixture.

5. Si, 15.80 per cent. No method reported.

6. Si, 15.75 per cent. Direct fusion with Na_2CO_3.

7. Si, 15.75 per cent. Fusion with Na_2CO_3 of residue from solution in HCl alone.

8. Si, 15.71 per cent. Same method as No. 6.

9. Si, 15.27 per cent. Fusion with Na_2CO_3 of residue from HCl and HNO_3.

10. Si, 15.21 per cent. Same method as No. 9.

11. Si, 14.90 per cent.

Exports of Wire Nails and Wire.

The American Steel & Wire Company's most important foreign shipments of wire nails during February went to Japan and Turkey. To the ports of Yokohama and Kobe in the former country were forwarded three lots, which aggregated 1373 tons. The largest individual shipment of nails made last month went to Yokohama, 883 tons having been forwarded in one lot to that port. The next most important cargo was shipped to Constantinople, which point took 622 tons by one vessel. The following are particulars of other recent export shipments of the company's nails: United Kingdom, total, 112 tons, distributed thus—Manchester, 50 tons; London, 34 tons, while Leith and Liverpool were forwarded 14 tons each. These shipments were all made in single lots to the respective ports. Hamburg took 118 tons in one shipment; 91 tons in four lots were forwarded to Antwerp, while one shipment of 13 tons was made to Rotterdam. Small lots also went to Singapore, Sydney and Hong Kong.

The company's foreign shipments of wire during the period above mentioned were somewhat below the average. South America was again, however, an important purchaser, four shipments aggregating 514 tons having been forwarded to Buenos Ayres. Japan was the next best customer, Yokohama taking two lots, amounting to 230 tons. Great Britain bought 300 tons during the last 30 days. Details are as follows: London, 56 tons in two lots; Liverpool, 47 tons in three lots; Manchester, 45 tons in two shipments, while Glasgow took a single lot of 13 tons. Ireland was also a purchaser, Dublin taking a shipment of 35 tons. Four shipments, aggregating 140 tons, were made to Australian ports. The exports recently made to Continental Europe show a considerable falling off, only 87 tons having been forwarded there, made up as follows: Christiania, 46 tons in two lots; Rotterdam, 29 tons in two shipments, while Hamburg took one lot of 13 tons.

The Youngstown Forging Company.

The Youngstown Forging Company of Youngstown, Ohio, have installed and placed in operation in their plant one of the largest and most modern steam forging hammers in that section. It is the production of Bement, Miles & Co. of Philadelphia. With the operating cylinder the machine is 15 feet high and weighs 20 tons. The die surface of the hammer is 11 x 24 inches, and has a 40-inch stroke, with a capacity of 120 strokes per minute. It is built upon a foundation 13 feet square, composed of 20 tons of concrete, 3000 feet of hard oak and 4000 brick. At present the hammer is at work on a shaft for a hydraulic shear, being built for the Lloyd Booth Company. Although a comparatively new concern the company mentioned are rapidly coming to the front as manufacturers of heavy forgings; and being the only forging concern between Cleveland and Pittsburgh, they enjoy an excellent home patronage. In addition to the contract mentioned the company are at work on a contract for large converting mill troughs and 9-inch piston rods for the Virginia Iron, Coal & Coke Company of Middlesboro, an order for a number of 1400-pound bottom plates for a Pittsburgh concern, one of the largest housing screws ever built for the Lloyd Booth Company; and a straight contract for the American Tin Plate Company.

*Volatilization of silica after evaporation in HCl and H_2SO_4. HFl used in volatilization.

Make of Pig Iron in Great Britain in 1899.

Statistics which have been collected from makers throughout the country, says the *Iron and Coal Trades Review*, show that the total make of pig iron in the United Kingdom in 1899 amounted to 9,305,319 tons, which is an increase of 624,248 tons on the quantity produced in the previous year. The largest item of increase appears in the case of South Wales, where the total output for 1899 was 435,661 tons in excess of the total output for the year 1898. In the district of North Yorkshire there has been an increase of 18,717 tons, in West Cumberland an increase of 82,409 tons, in Derbyshire an increase of 43,112 tons, and in North Staffordshire an increase of 63,185 tons. Decreases appear in Scotland to the extent of 23,426 tons, in Durham of 45,332 tons, in Lancashire of 7489 tons, and in Northamptonshire of 6000 tons.

The make of different descriptions of iron in 1899, compared with the make of the previous year, has been as follows:

	1898. Tons.	1899. Tons.
Forge and foundry	4,408,017	4,258,956
Hematite	3,273,152	3,990,282
Basic	780,028	860,672
Spiegeleisen, &c	219,874	195,409
Totals	8,681,071	9,305,319

There is, as yet, no record available of the total quantity of iron ore consumed in the United Kingdom in 1899. But the total volume of iron ore imports was 7,055,178 tons, which is an increase of 1,587,000 tons on the corresponding imports for the year 1898. If this increase be taken at 2 tons of iron ore to 1 ton of pig iron made, the increased output of pig iron from imported ore in 1899 would amount to 793,000 tons, against an ascertained increase of pig iron output for the year of 624,248 tons, from which it would be inferred that the quantity of pig iron made from home ores in 1899 was about 168,752 tons less than the corresponding make of the previous year.

The total stocks of pig iron in the hands of makers at the end of the year 1899 were extraordinarily low, amounting to only 192,396 tons. The stocks in public stores in Scotland, Cleveland, and West Cumberland amounted to a further total of 528,321 tons. The total stocks under both heads reached 720,717 tons, which is only equal to 8 per cent., or rather over four weeks, of the make of 1899.

The following figures give the average number of furnaces in blast and out of blast during the year 1899:

	In blast.	Out of blast.	Total.
Scotland	83	17	100
Durham	29½	11½	41
North Yorkshire	67	14	81
West Cumberland	29½	11½	41
Lancashire	23½	15½	39
South Wales	28¾	37¼	66
South Staffordshire, &c	22	24	46
North Staffordshire	20	18	38
Lincolnshire	16	6	22
Northamtonshire	14½	6½	21
Derbyshire	30½	6½	37
Notts and Leicestershire	16½	3½	20
South and West Yorkshire	19	8	27
Shropshire	4	5	9
North Wales, &c	5	3	8
Totals	409	187	596

New furnaces were being built at the end of 1899 as follows:

District.	Number of furnaces.
Durham	..
Cleveland	2
South Staffordshire	4
Derbyshire	2
South Wales	2
North Staffordshire	1
Wiltshire	1
Total	12

In addition to the above 12 new furnaces, 53 new furnaces were being rebuilt at the end of the year 1899, of which 9 were in Durham, 7 in Cleveland, 7 in South Wales, 10 in West Cumberland, 10 in Staffordshire, and 5 in Scotland.

New Electric Railway Construction.—According to the *Electrical Review*, the coming summer promises to be one of the most active in electrical railway construction that has marked the history of this movement. Two undertakings of great importance are to be carried out in New York City alone. One of these is the completion of the Third Avenue Railroad Company's electric system, by underground trolley, and the other is the electrification, also underground, of the Broadway, Lexington and other important lines of the Metropolitan Street Railway Company, which are now operated by cable. The Broadway line, which has two great branches, one of which extends nearly the whole length of Manhattan Island on Columbus avenue, and the other nearly as far in Lexington avenue, contains a large mileage, and is probably the largest single line of street railway in the world. The construction work of this system is to go on without interfering with the operation of cars, and will entail an expense of about $8,000,000 for the change. In the Middle West a number of long interurban lines will be constructed, some of which will be over 100 miles in length. Unusual preparation is also under way in Pennsylvania and in New England for the construction of street railways and interurban lines.

The American Steel Hoop Company.

The American Steel Hoop Company have issued the following statement showing in condensed form the results of the operations of the company since their organization, April 17, 1899, and their assets and liabilities on December 30, 1899:

Assets.

Actual plant, real estate, machinery and personal property	$30,770,741.89
Stock on hand, raw materials and finished product	2,685,908.89
Bills receivable	101,218.43
Accounts receivable	2,866,386.79
Cash	502,688.45
Total	$36,426,944.45

Liabilities.

Capital stock, preferred		$14,000,000.00
Capital stock, common		19,000,000.00
Mortgage, assumed		25,000.00
Bills payable (issued in part payment on properties purchased)		240,000.00
Accounts payable		622,912.15
Profits since organization	$3,029,032.30	
Less dividends paid	490,000.00	
Surplus and undivided profits		2,539,032.30
Total		$36,426,944.45

The increase in the valuation of plant, &c., represents ore and coal property purchased, now selling at a considerable advance over the purchase price, and in the betterments at the Isabella furnace plant. The stock of material and product was put down at cost. The mortgage assumed is part of the original Lindsay-McCutcheon mortgage, which becomes due only next year.

Since the close of last year, to which the above statement applies, there has been paid a dividend of $245,000 on the preferred stock, and yet the cash on the 1st of January has been increased to $1,149,741. We understand that the January profit is estimated to have been $600,000, in spite of the fact that the mills were closed down for ten days for the sake of taking inventory.

Referring to the statement made, C. S. Guthrie, president of the company, reports that when the American Steel Hoop Company were organized the constituent companies had orders on hand aggregating 200,000 tons at prices which made the average of $22.62 per ton. These had to be worked off, so that the profits in the early months of the fiscal year were not, by far, as large as those now being earned, and thus dragged down the average.

High Wages in the Connellsville Region.

Wages in the Connellsville coke district were never so high as at the present time, and the recent advance in wages given all classes of workers benefits more men than were ever employed in the region before. The practice of the coke producing companies has been to voluntarily advance the wages of their workmen, and the present advance is the fifth raise in wages in the district since February 10, 1894. The total advance in wages since that period aggregates 60 per cent. to miners and 67 per cent. to coke drawers. The voluntary advances given the workers in the coke fields occurred February 10, 1894; April 1, 1895; October 1, 1895; January 1, 1896; April 29, 1899, and the present advance, effective March 1. The price of mining and loading coal was advanced from 78 cents per 100 bushels in 1894 to $1.25 per 100 bushels by the rate now in effect. Coke drawing was raised from 43 cents per 100 bushels charged to 72 cents, the rate now paid; and other branches of mine labor were advanced in the same ratio. The H. C. Frick Coke Company own 31 plants, and own or operate about 14,000 coke ovens. The W. J. Rainey Company operate 2210 ovens; and the several furnace or steel companies, such as Cambria Steel Company, Oliver-Snyder Steel Company, Dunbar Furnace Company, Laughlin & Co., own about 4000 ovens. There are about 1000 ovens operated by independent coke companies. This tabulation does not include the new ovens being erected by the Federal Steel Company, American Steel & Wire Company and the various steel combinations in the Masontown coke field, now being developed. About 1200 ovens are in course of erection in the new field, and it will be a factor in the output of the district about June 1.

Shenango Valley Notes.

The Sharon Steel Company, Sharon, Pa., who are laying out a new town south of Sharon, are making good progress with the great enterprise which they have on hand. Many acres of low lying land are being filled with furnace slag and many side tracks are completed. The sewer system for the new town site is now being put in and machinery for the mills will be coming in soon.

The muck mills at Wheatland, Pa., which were abandoned a few years ago, have been repaired and rebuilt since good times came and they now have the appearance of being one of the most prosperous mills of the Shenango Valley. Houses in Wheatland which were vacant a year ago and could be bought for $10 or $15 are now renting for $8 or $10 per month, and the charter has been secured for a street railway to extend from Sharon to Wheatland, a distance of 3 or 4 miles.

All the furnaces of Sharon and Sharpsville, Pa., are in successful operation.

A $6000 bond issue has been sold at New Wilmington, Pa., for 4½ per cent. to Cleveland bankers, and an electric light plant will be erected by the borough. A steam heating plant may be operated in connection with the light plant.

Charles G. Sankey, passenger agent of the Pennsylvania lines at New Castle, Pa., has resigned to take a position with the Republic Iron & Steel Company.

The South Sharon Water Company have been organized to supply water to the region between Sharon and Wheatland, Pa.

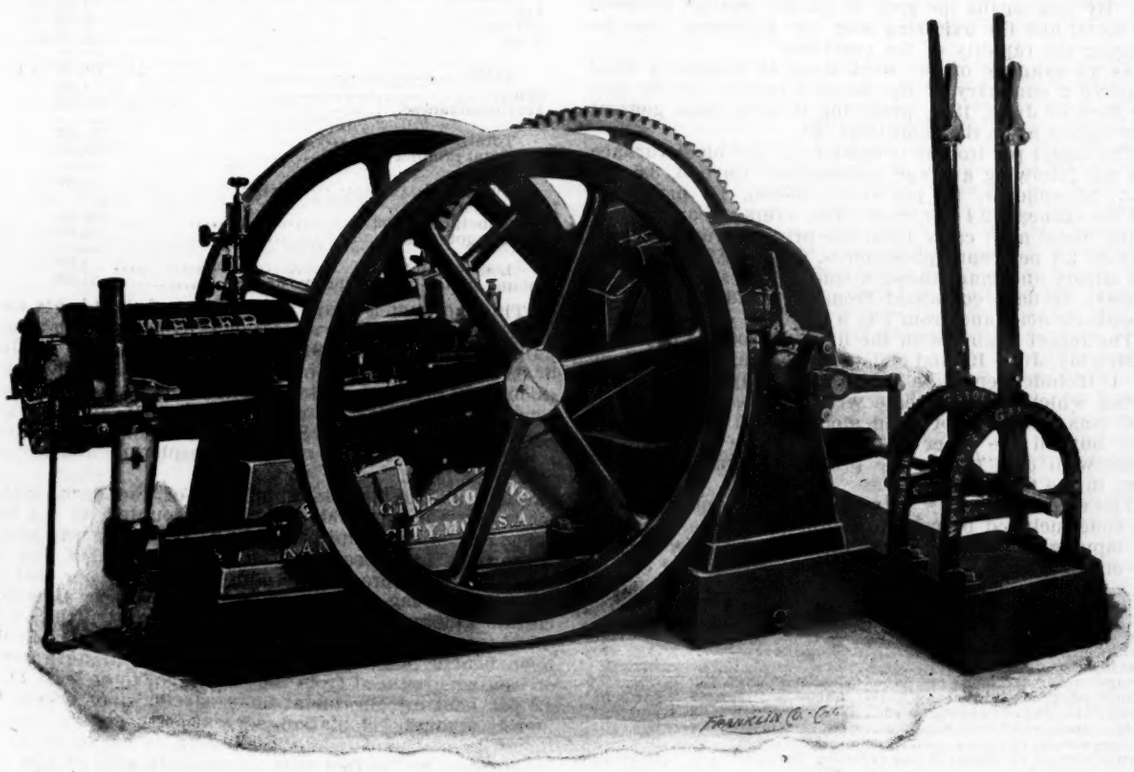
A Shipyard for East London, Conn.

The Eastern Shipbuilding Company, recently organized, have decided to establish their shipbuilding plant on the Thames River at New London, Conn. Negotiations have been in progress for some time, but final details were only completed a few days ago that guarantee the location of the enterprise at New London. The company already have contracts for building two freight and passenger steamers to cost about $2,500,000, which, it is stated, will be among the largest ever built in this country. The exact location of the new shipbuilding plant is in doubt. A site on the Groton side of the river, owned by the Consolidated Railroad Company, cannot be purchased, but the railroad company will lease it for ten years. This arrangement is not pleasing to the shipbuilding company and may result in the plant being located on the New London side, nearly opposite to the United States naval station.

Charles R. Hanscom, who recently resigned his position as general superintendent of the Bath Iron Works, Bath, Maine, is the president and general manager of the new company. William A. Fairburn, formerly naval architect and engineer at the Bath Iron Works, will act in a similar capacity at the New London plant, and Charles E. Thomas and E. N. Heath of Cleveland, Ohio, will fill responsible positions under the new concern.

The Weber Gasoline Hoisting Engine.

In the gasoline hoisting engine built by the Weber Gas & Gasoline Engine Company of Kansas City, Mo., the engine proper is of the standard type built by the company. It is bolted to a heavy base plate on which is carried the hoisting drum. This drum is driven from the main shaft through pinion and gear as shown. All end thrust on the drum shaft is done away with, this being accomplished by means of a toggle joint friction clutch arrangement which is very sensitive and which enables the operator to control the load in a perfectly safe manner. The two operating levers are arranged so that the operator can handle both clutch mechanism and the brake band, also the speed of the engine, without moving. These operating levers, when necessary, can be moved to a point near the mouth of the shaft, enabling the engineer to take care of the loaded skips and buckets as they come to the surface. The engine is provided with both tube and electrical ignition. The speed of the engine varies from 50 to 300 revolutions per minute as may be desired.



THE WEBER GASOLINE HOISTING ENGINE.

The Pratt & Whitney Company.—At the annual meeting of the Pratt & Whitney Company held at Hartford, Conn., on March 15, the following directors were elected for the ensuing year: F. A. Pratt, Amos Whitney, R. F. Blodgett, Rowland Swift, Daniel R. Howe, W. W. Hyde, John R. Redfield, George W. M. Reed and F. C. Sumner, Hartford; C. C. Cuyler, A. C. Vaughan, Robert S. Walker and E. B. Blackford, New York, and T. J. Nicholl, Rochester, N. Y. The directorate contains one new name, that of E. B. Blackford of New York, who is added to the board. All the other directors were re-elected. The directors re-elected officers as follows: President, Amos Whitney; vice-president, T. J. Nicholl; consulting engineer, Francis A. Pratt; secretary, R. F. Blodgett; treasurer, J. C. Stirling. Mr. Nicholl, who is the new vice-president, was connected with the management last year as managing director, and takes the place of vice-president occupied temporarily by Rowland Swift. Mr. Swift continues at the head of the Executive Committee and his associates are C. C. Cuyler of New York, John R. Redfield, T. J. Nicholl and Amos Whitney.

Further Notes on the Bertrand-Thiel Process.*

BY JOSEPH HARTSHORNE.

The nature of this process and the general course of its development have already been described by me in two papers read before this Institute (Trans. xxvi, 380, and xxviii, 254).

The development at Kladno since the latter paper was read has been almost altogether in the direction of using metal direct from the blast furnace, and this has now been the regular practice for about a year. The molten metal is brought from the furnace in ladles, without the intervention of any mixing or accumulating reservoir.

The plant remains practically the same as originally described by me (Trans. xxvi, 380), except that the primary furnace has been enlarged as much as was permitted by the existing conditions. This was done primarily in order to increase the capacity of the plant by enlarging the limiting factor, but advantage was also taken of the opportunity to change the design of the furnace by making the hearth as long and wide as possible. By this means the area of surface contact between the metal and the oxidizing slag was increased, thus increasing the rapidity of the reactions.

As an example of the work done at Kladno, I have prepared a summary of the detailed reports for the last ten days of June, 1899, prefacing it with some general information as to the conditions, &c.

The liquid pig iron as it came from the blast furnace had the following average composition: Carbon, 3.5 per cent.; phosphorus, 1.5 per cent.; silicon, 1.0 per cent., and manganese, 0.4 per cent. The average composition of the metal as it came from the primary furnace was: Carbon, 2.4 per cent.; phosphorus, 0.10 to 0.20 per cent., and silicon and manganese, a trace. The slag from the primary furnace contained from 20 to 23 per cent. of phosphoric acid, and from 7 to 9 per cent. of iron.

The report begins with the first heat of the day turn of Monday, June 19, and ends with the day turn of June 30. It includes ten and a half working days, or 21 turns, during which time 80 heats were completed. The first heat was made up of solid stock which was charged cold, but all the other heats were made up of direct metal with cold pig in the primary furnace and cold scrap in the finishing furnace.

The term "interval," as used in this summary means the time included between the tapping of one heat and the tapping of the next one in the same furnace: that is, the entire time for a heat, including repairs and charging.

Summary.

Total number of days	10.5
Total number of turns	21
Total number of heats	80
Average number of heats per day	7.6
Average amount of liquid pig in the charge	79.22 per cent.
Average amount of cold pig in the charge	6.50 per cent.
Average amount of cold scrap in the charge	14.28 per cent.
Average weight of charge in the primary furnace	12,309 kg.
Average weight of charge in the finishing furnace	14,359 kg.
Average total charge, including spiegel, &c.	15,058 kg.
Average total product, including scrap	14,989 kg.
Average product of ingots, &c	14,559 kg.
Average amount of ore used in primary furnace	12.89 per cent.
Average amount of ore used in finishing furnace	10.61 per cent.
Average amount of limestone used in primary furnace	6.10 per cent.
Average amount of limestone used in finishing furface	2.61 per cent.
Average interval for primary furnace	3 hours 0.15 minute.
Average interval for finishing furnace	3 hours 0.10 minute.
Average time metal remained in primary furnace	1 hour 57.70 minutes.
Average time finishing furnace was empty	1 hour 2.30 minutes.

Stock account—		
Total charge, including spiegel, &c.	1,204,630 kg.	
Total product, including scrap	1,199,134 kg.	99.54 per cent.
Total loss	5,496 kg.	0.46 per cent.
Ingot account—		
Total charge, including spiegel, &c.	1,204,630 kg.	
Total product of ingots, &c	1,164,738 kg.	96.69 per cent.
Loss to ingots	39,892 kg.	3.31 per cent.

The iron of the ore is not included in the weight of metal charged. About 1 per cent. of scrap is recovered from the slag, mostly in the form of shot, but this is not included in the amount of scrap shown in the above account.

The time the charge remains in the furnace being so nearly the same for each, the limiting factor of the plant is the size of the smaller furnace, which, in this case, is the primary one. The general result of the operations covered by the report summarized is, that an average of 7.6 heats per day, averaging 14,559 kg. each, or a total of 110.65 metric tons, was obtained from a pair of furnaces, the limiting one of which had a capacity of about 13 tons. This product was made with a total loss of 0.46 per cent., and a loss to ingots of 3.31 per cent. The finishing furnace was empty for about one-third of the time, averaging one hour and two minutes to a heat, but a part of this time was, of course, taken up by the repairs. These repairs were, however, very light.

Since the end of June the work has been carried on upon the same lines, with a slight but decided increase both in number and weight of heats per day. The last detailed report received up to the time of writing was for the week ending December 9, 1899. The actual time of working was 45 minutes less than a full week of six days. The following is a summary of the operations for this week. It is not given in such detail as the one for June, since the general features are practically the same.

Summary of Report for the Week ending December 9, 1899.

Total time occupied	6 days 23 hours 15 minutes.
Total number of heats	48
Average number of heats per day	8
Average weight of ingots per heat	15,220 kg.
Average daily product of ingots	121,760 kg.
Total product of ingots for the week	730,670 kg.
Total amount of ore charged	184,160 kg.
Total amount of limestone charged	70,200 kg.

	Kg.		Per cent.
Stock account—			
Pig, liquid	571,190	=	79.76
Pig, cold	73,390	=	10.25
Old rolls	16,290	=	2.27
Scrap	55,280	=	7.72
Total	716,150	=	100.00
Spiegel	8,480		
Ferromanganese	10,400		
Total	735,030		
Total product	748,560		
Total gain	13,530	=	1.84
Ingot account—			
Total metal charged	735,030		
Total ingots, &c	730,670	=	99.40
Loss to ingots	4,360	=	0.60
Amount of slag from primary furnace	81,600		

This shows an average daily output of eight heats, each weighing 15,220 kg., or a total of 121,760 kg., with a total gain for the week of 1.84 per cent., and an ingot product of 99.40 per cent. The ore used is Gellivara, containing about 67.0 per cent. of iron. These results are the more remarkable when it is remembered that the charges were made up of from 85 to 90 per cent. of a pig iron which contains 1.5 per cent. of phosphorus and 1.0 per cent. of silicon.

Since the oxidizable impurities of the bath, which make up the unavoidable loss, amounted to 6.4 per cent., and an absolute gain of 1.84 per cent. was made, there must have been at least 8.25 per cent. of iron reduced from the ore. If we add to this the 1 per cent. of shot in the slag and remember that there is always a certain amount of the iron of the charge which is oxidized (amounting to from 2 to 4 per cent. in the ordinary open hearth process), it is safe to say that an amount of iron was reduced from the slag equal to at least 11 to 12 per cent. of the metal charged. This, of course, is merely a rough calculation, several of the minor factors being ignored, and, while interesting, is not of so much importance as the fact that an absolute gain of 1.84 per cent. was made with an ingot product of 99.4 per cent. The average for the month of December was 102 kg. total product for every 100 kg. of metal charged, with an ingot product of 98.2 per cent.

The production of 81.6 metric tons of slag, containing from 20 to 23 per cent. of phosphoric acid, is a factor which is not yet of so much importance in this country as it is in Europe, where between 400,000 and 500,000 tons of basic slag per year are used as a fertilizer. With proper efforts, however, the great value of this material must finally be appreciated by our farmers and a good market obtained for it.

On page 261 of Vol. xxviii of the Transactions I have given summaries of the deductions which seemed to me were to be drawn from the experience up to that time. These deductions have been practically substantiated by the results of the subsequent operations at Kladno, but there are two modifications which should be made in the section (3) relating to the use of direct metal. The later results have shown that the two furnaces constituting the unit of a plant for the use of direct metal should be of the *same* size, or, rather, capacity; and that the weight of the heat is determined by the capacity of the smaller one, should there happen to be any difference between them.

In a plant which is built on different levels, as at Kladno, and in which the metal runs from one furnace to the other by means of a trough, the upper furnace is always the primary and the lower furnace the finishing one. Where the furnaces are all on one level and the primary metal is transferred by means of ladles, each furnace may be either a primary or a finishing one, as circumstances may determine. In the first case, where each furnace is always used for the same purpose, a certain advantage may be gained by modifying the de

* Paper read at the Washington meeting of the American Institute of Mining Engineers.

sign to suit the special function intended. It would then be better that the primary furnace should have a hearth with as large an area as possible, thus giving a shallow bath with great surface contact between the metal and the slag. This will shorten the operation by hastening the reactions, and at the same time will somewhat reduce the repairs. The finishing furnace should have a deeper bath, in order to lessen the danger of oxidizing the metal.

When all the furnaces are likely to be used for either purpose this difference in form cannot be taken advantage of, and the furnaces should be designed to suit the finishing part of the process. In my opinion, the loss of time due to the use of a deeper bath in the primary furnace would be much more than made up by the greater simplicity, convenience and flexibility of the plant.

In conclusion, I would again point out that this process is exceedingly advantageous for those localities where scrap is scarce and dear and large quantities of pig iron high in silicon or phosphorus, or in both, have to be used. This has lately been shown again in an extended series of experiments made in an English plant. The detailed results of these experiments have not yet reached me, but among other things, they showed that a pig iron containing from 2.75 to 3.00 per cent. of phosphorus and comparatively high silicon could be used without lengthening the process. The arrangements for making these trials were somewhat imperfect, as compared with a plant designed for the particular purpose, but the results were practically the same as those obtained at Kladno.

To Raise the Level of Lake Erie.

The increased number of iron and steel plants on the shores of Lake Erie and along the Niagara River and prospective increase of the iron ore business to the several ports make the iron and steel trade quite interested in whatever is likely to be done in connection with the movement to raise the level of Lake Erie. This matter is receiving earnest attention in Washington, and it is possible that the United States Government, acting with the Dominion Government, will, at the expenditure of a considerable amount, bring about the regulation of the level of Lake Erie, by means of a dam at the foot of the lake near Buffalo.

Recently Hon. Elihu Root, Secretary of War, has transmitted a letter from the United States Board of Engineers on Deep Waterways, with a report on the regulation of the level of Lake Erie, to the House of Representatives, and through this means the report of the Board of Engineers is made public. The Board consists of C. W. Raymond, Alfred Noble and George Y. Wisner. The detailed and interesting report of the Board of Engineers opens as follows:

"Under the influence of varying relative supply, evaporation and discharge, the monthly mean level of Lake Erie has had an extreme variation of 4.6 feet during the past 70 years. The low level generally occurs at the time or near when navigation is most active. If the level of the lake could be constantly maintained at or near a high stage, navigation would be greatly benefited by securing a maximum depth at the time when it is most needed, and by the practical deepening of the lake harbors.

"To maintain the level of the lake at or near some fixed stage the discharge must be controlled so that it will always be approximately equal to the difference between the supply of water to the lake and the evaporation from its surface. In the case of Lake Erie, this can be accomplished only by establishing regulating works in or near the discharging waterway. These works must be so arranged that they will not only maintain the level of the lake at or near the fixed stage adopted, but also so they will produce no injurious effects upon the lakes and waterways from which a part of the supply is derived or upon those which receive the discharge."

In regard to the establishment of regulating works the Board of Engineers submits the following statement:

"The Board is of the opinion that the best location for works for regulationg the level of Lake Erie is at the foot of the lake, just below Buffalo harbor. The desired result cannot be obtained by the use of submerged fixed weirs only, and a series of sluices is added to secure, in combination with fixed weirs, the control desired. The weirs will be constructed of concrete blocks and will have an aggregate length of 2900 feet. The sluices, 13 in number, will have an opening of 80 feet, making an aggregate of 1040 feet. The piers separating the sluice openings will be of substantial first-class masonry. These sluices can be operated under rules easily formulated, and, in the opinion of the Board, amply provide for conditions more favorable than any recorded. A canal with a lock is provided on the American side around the end of the dam and the rapids at the head of the river, affording a much safer navigable channel than the present one through the rapids."

The estimated cost for the regulating works is $796,923, and for the lock and canal, $2,325,967. In reference to the effect upon Lake Erie the Engineering Board states:

"The extreme high water stage of Lake Erie is about 575 feet above tide water. The level adopted by the Board of Regulation is 574.5 feet, or about 0.5 below the level of extreme high water. This is the lowest elevation at which regulation can be effected without enlarging the cross section of the river at the gorge. The Board is of the opinion that with the works proposed the level of the lake can be maintained during the season of navigation within about 0.6 foot below the level adopted for regulation. Considerable changes of level, due to violent winds, would be temporary and infrequent, and, in the opinion of the Board, would not seriously interfere with the regulation of the lake level. The current velocities in the Niagara River below the point where the canal enters it will not be increased by the operation of the regulation works."

The report of George Y. Wisner on "Lake Regulation," prepared by him in consultation with the other members, is appended to that of the Board. Following are some of the points made:

"The average rainfall on the lake basins tributary to Lake Erie is 31.64 inches per year, and is equivalent to 618,000 cubic feet per second for the same period, of which, approximately, 340,000 cubic feet per second either falls on or flows into the lakes, and 278,000 is either absorbed into the land on which it falls or is evaporated from vegetation and surfaces of ponds, streams and marshes. About 120,000 cubic feet per second of the average annual supply to the lake reservoir system is taken up by evaporation and 220,000 cubic feet per second discharged through the Niagara River.

"The variation in the annual rainfall on the lake system amounts to 12 inches over the entire basin, and is equivalent to a depth of 27 feet over the surface of Lake Erie, whereas the maximum storage which has occurred in any one year on Lake Erie only amounts to 2.16 feet in depth, with an average of 1.17 feet, or less than 5 per cent. of the mean discharge of the Niagara River, and only one twenty-third of the total variation of the annual rainfall on the drainage basin tributary to the lakes.

"The two different plans which have been generally advocated for controlling the levels of the lakes are to construct a dam, with regulating sluices, across the Niagara River below Tonawanda, N. Y., or to construct a submerged weir in connection with a set of regulating sluices at the foot of the lake, just below Buffalo harbor.

"A preliminary study of the problem and an estimate of the cost of regulating works, based on these surveys and examinations, develop the fact that the first of these plans would require an expensive dam with lock and waste weirs in the Niagara River on each side of Grand Island, the excavation of over 5,000,000 cubic yards of material in the head of the river, the purchase of at least $3,000,000 worth of property, which would be ruined by the works and high water along the river front, and the construction of several miles of dikes to safely maintain the impounded water above the level of the adjacent country. This distance from Lake Erie to the site where the dam would have to be constructed is 12 miles, on which the high water slope of the river is 8.5 feet.

"The total cost of the project, including damages and the necessary drainage canal for taking care of Tonawanda Creek and the water from adjacent country, would be over $12,000,000, which, with the fact that the lakes would still have considerable fluctuation, practically eliminates all chances of the plan receiving favorable consideration. If a deep waterway should ever be constructed from Lake Erie to Lake Ontario, via the Tonawanda-Olcott route, the improvement of the river by regulating works below Tonawanda would diminish the cost of the canal about $6,000,000, which would still leave a balance of $6,000,000 chargeable to the project.

"Regulation of the lake levels by means of controlling works in the foot of Lake Erie will require either a submerged weir of such length that the change of discharge over crest of weir, due to a few inches variation of stage of lake, will be equivalent to a variation of outflow through the gorge at head of river due to a 3-foot change in the depth of the river, or a short submerged weir in connection with a set of regulating sluices, so designed that, with the sluice gates all closed, the low water flow for the regulated stage of the lake will be discharged over the fixed submerged weir, and with the sluice gates all open the additional volume of outflow necessary to maintain the lake at nearly the same level will pass through the sluices at times when the lake is receiving its maximum supply.

"The surveys and examinations indicate that a com-

bination of a fixed weir and regulating sluices is better adapted for an economical and complete control of the lake level than by means of a fixed weir, and the plans and estimates submitted are for such a project. The piers for the sluice gates can be constructed in one season, and the superstructure, gates and fixed weirs during the second season after the commencement of the work.

"The installation of regulating works will necessitate the construction of a lock for passing vessels from Lake Erie to ports on the Niagara River. Such a lock will, however, be a necessity for any project which provides for the same depth of channel for Tonawanda as for Lake Erie harbors, and very likely will be required with whatever plan of improvement may be adopted for Lake Erie harbors and waterways. The heavy current in the head of Niagara River makes navigation of the river difficult and dangerous, but below the gorge the river is broad and deep, with a current of about 2 miles per hour. A canal for passing vessels around the rapids will avoid excessive currents for all stages of the river and will secure safe navigation between the lakes and ports on the Niagara River."

James J. Hill, president of the Great Northern Railway Company, says that the company are now building two steamers which will probably surpass any steamers in the world as regards tonnage capacity. Each of these steamers has a little less tonnage capacity than that of two "Lucanias" combined. This great tonnage will enable the steamers to carry large cargoes at cheap rates, and, as he says, the cheaper we can ship our products to Asia the sooner will we extend our markets.

A recent census of Homestead, Pa., was taken and showed that that place had a population of 15,006, entitling it to free delivery. There has been a heavy increase in the population at Homestead in the last couple of years, owing to the fact that very large additions and improvements have been made to the works of the Carnegie Steel Company, Limited, which have brought many more people there for employment.

Friction of Steam Packings.*

BY CHAS. HENRY BENJAMIN, CLEVELAND, OHIO.

It is generally conceded that one of the most serious frictional losses in engines and pumps is that due to the rubbing of piston and valve rods in their stuffing boxes, and that this loss varies with the kind of packing employed, the steam pressure, and the judgment of the engineer.

The writer is not aware, however, that any experiments have been described which would show the extent of this loss and the law of its variation. The experiments described in this paper were made at the laboratories of the Case School by senior students, under the direction of the writer. The apparatus used was constructed by E. O. Lieghley of the class of '98, Case School of Applied Science, and a few experiments made by him. During the past year G. S. Beckwith, of the class of '99, made a large number of tests with different varieties of packing, and the results seemed of such interest as to justify their presentation to this society.

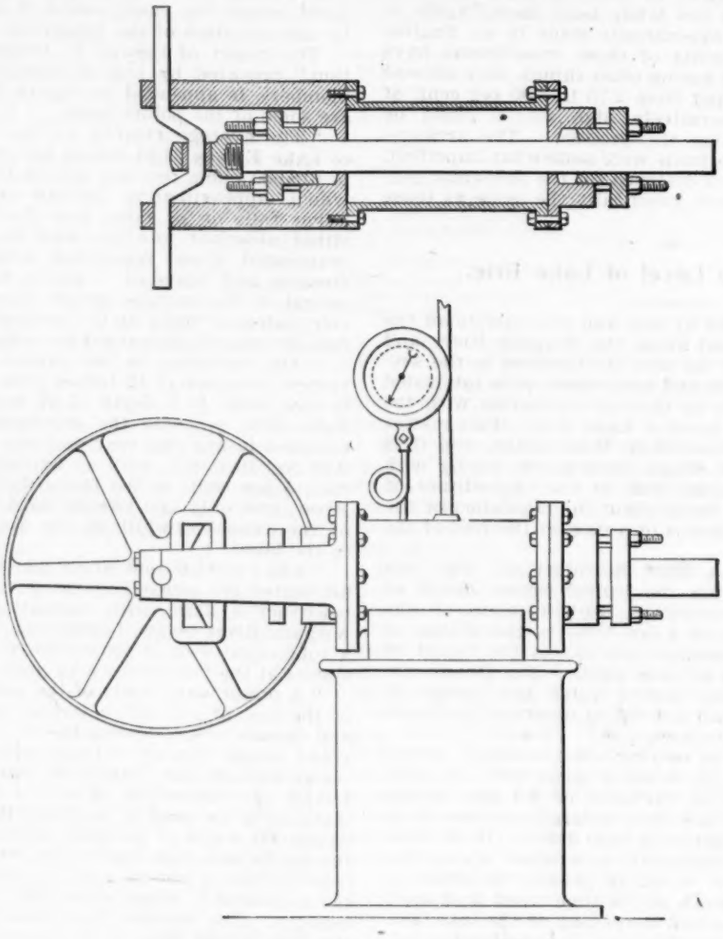


Fig. 1.—Apparatus Used in Testing.

FRICTION OF STEAM PACKINGS.

The general character of the apparatus is shown in Fig. 1. It consists of a cast iron cylinder, 6 x 13 inches inside, fitted at each end with a cover and stuffing box suitable for a 2-inch rod. The proportions of the gland, &c., were taken from those of a well-known engine. The rod was given a reciprocating motion by means of a slotted cross head and crank; a pulley on the crank was connected by a belt with the pulley of a transmitting dynamometer; steam was admitted to the cylinder by the vertical pipe shown in the figure, and the water of condensation was drained off from time to time at the bottom.

A steam gauge attached to the cylinder showed the internal pressure at each instant. The adjusting nuts of the glands were usually tightened only by the fingers, but when a wrench was used it was turned by a spring balance, and the turning moment noted.

*Paper presented at the New York meeting of the American Society of Mechanical Engineers.

The travel of the rod was 4.25 inches, and the usual speed about 200 revolutions per minute, giving a piston speed of about 140 feet per minute. Seventeen different varieties of packing were tested, made by nine different manufacturers. The materials present were rubber, asbestos, cotton, flax or hemp, lead, mica, graphite and paraffin. No metallic packings, strictly so called, were tried.

The following brief description will show the general characteristics of each variety:

1. Square, ring, ⅞-inch. Layers of canvas and rubber, saturated with graphite and oil.

2. Sectional, ring, ⅞-inch. Composition similar to No. 1. Each ring consists of an inner and outer cone, fitting together, and so wedging under pressure as to fit tightly to rod and box.

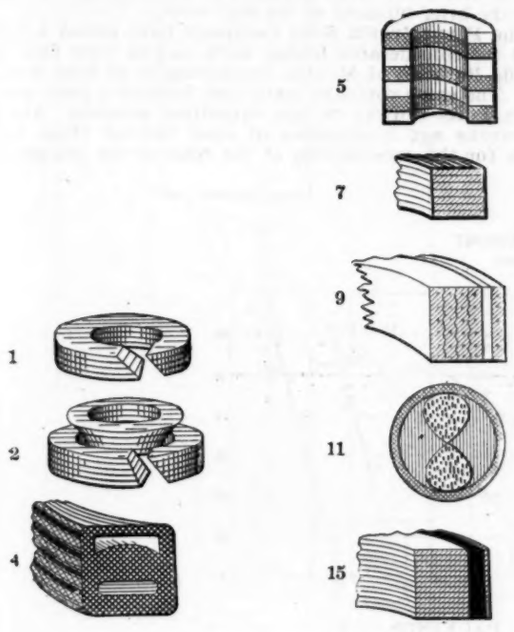


Fig. 2.—Specimens of Packing.

3. Similar in shape and construction to No. 1.

4. Metal face packing. Alternate soft and metallic rings. The metallic rings contain lead band, backed by rubber and flax, the whole wound with cotton braid.

5. Two kinds: (*a*) a sleeve composed of woven flax, rubber and canvas; (*b*) a spiral packing of woven flax backed with rubber.

6. Spiral, square, ⅞-inch. Alternate layers of rubber and canvas.

7. Spiral, square, ½-inch. Layers of canvas and rubber, saturated with graphite and oil.

8. Similar to No. 7, but of a different make.

9. Spiral, square, ½-inch. Composed of rubber and asbestos compound, with elastic rubber inset. Slightly impregnated with graphite.

10. Spiral, circular, ⅞-inch. Red rubber core, wound with layers of rubber and flax, and coated with graphite.

11. Spiral, round, ½-inch. Two wedge-shaped strands of woven flax in center, and two strands of canvas, the whole surrounded by a woven cover saturated with graphite and oil. There seemed to be also some paraffin present.

12. Spiral, round, ½-inch. A rubber core, around which are braided three thicknesses of hemp or flax, soaked in oil. The whole coated with paraffin.

13. Spiral, round, ½-inch. A rubber core, surrounded with layers of woven cloth and rubber, impregnated with ground mica.

14. Square, ½-inch, pump packing. Alternate layers of canvas and rubber. No lubricant.

15. Square, ½-inch. Similar to preceding, but having a rubber back about ⅛ inch thick.

16. Square, ½-inch. Alternate layers of rubber and canvas. No lubricant.

17. Spiral, square, ½-inch. Woven flax, soaked in oil.

As at first constructed, the gland was adapted for packing ⅞-inch thick. The flat ring and sectional packings of this size, such as Nos. 1, 2 and 3, worked well, but it was found that no spiral packing ⅞-inch thick would coil easily around a 2-inch rod. Accordingly, the box was bushed and a new gland made to accommodate ½-inch packing.

In cutting and inserting each kind of packing, careful attention was paid to the accompanying directions, and an endeavor was made to insure the most favorable conditions. It was not practicable to make endurance tests, but each packing was allowed to remain in the box long enough to get into fair working order.

The routine of each trial was about as follows: The apparatus was first tested empty of packing to determine friction.

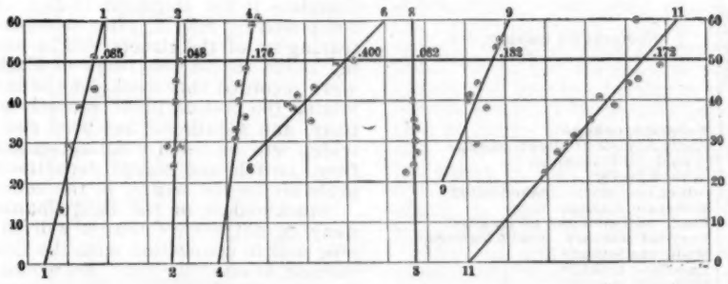
The packing was then inserted and adjusted in each end, according to directions, and the steam turned on. The very least pressure which would prevent leakage was used on the gland nuts. The packing was then tested under various steam pressures, each run lasting from 15 to 40 minutes. The nuts were then tightened to various pressures, and other sets of readings taken. Cylinder oil was next applied to the rod, the only lubrication in the tests so far having been that contained in the packing itself. Finally, a last run was made with the boxes empty, as at first. A Flather recording dynamometer was used on a few of the runs so as to determine the nature of the variations in power. The majority of the tests were made with a Webber box gear dynamometer, readings being taken at short intervals and averaged.

Table I gives a summary of the results, showing the average horse-power consumed by each packing box at varying pressures and, for purposes of comparison, the power at 50 pounds pressure of steam. The friction of the machine has been deducted.

TABLE III.

VARYING STEAM PRESSURE

SCALE 1 INCH = 0.1 H. P.



FRICTION OF STEAM PACKINGS.

Table II shows the effect of tightening the gland nuts on the friction of the packing and also the effect of oiling the rod.

In most of the experiments detailed in Table I the nuts were tightened with the fingers only, and then just enough to prevent leakage, and no lubricant was used except that incorporated in the packing itself. With some of the dry rubber packings it was necessary to use oil from the first. A good quality of cylinder oil was applied.

The effect of varying the steam pressure is best shown graphically, as in Tables III and IV. The numbers at the ends of the lines correspond to the numbers used in the other tables. The ordinates indicate the steam pressures observed, while the abscissas represent the horsepower consumed by each box. The points where these lines cut the line of 50 pounds pressure are those used for comparison of the different packings. It will be seen that the friction varies with the pressure in approximately straight line ratios in many of the cases.

General Conclusions.

1. That the softer rubber and graphite packings, which are self adjusting and self lubricating, as in Nos. 2, 3, 7, 8, and 11, consume less power than the harder

varieties. No. 17, the old braided flax style, gave very good results.

2. That oiling the rod will reduce the friction with any packing.

3. That there is almost no limit to the loss caused by the injudicious use of the monkey wrench.

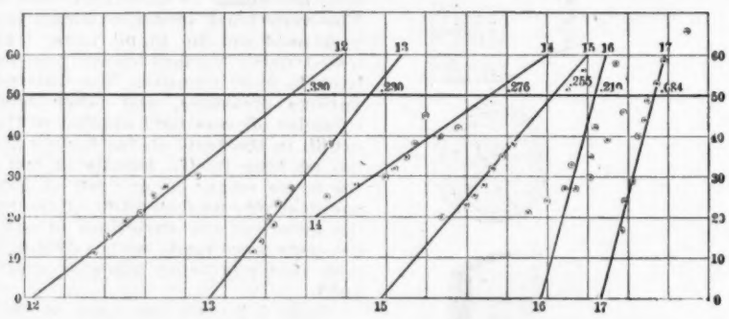
4. That the power loss varies almost directly with the steam pressure in the harder varieties, while it is approximately constant with the softer kinds.

The diameter of rod used—2 inches—would be appropriate for engines of from 50 to 100 horse-power. The piston speed was about 140 feet per minute in the experiments, and the horse-power varied from 0.036 to 0.400 at 50 pounds steam pressure, with a safe average for the softer class of packings of 0.07 horse-power.

At a piston speed of 600 feet per minute, the same friction would give a loss of from 0.154 to 1.71 with a working average of 0.30 horse-power, at a mean steam pressure of 50 pounds.

It is the intention of the writer to make a series of tests with water packings, and also to try some of the standard forms of metallic packings. He would be glad of any criticisms and suggestions from builders and users of pumps and engines, in regard to any further experiments.

TABLE IV.
VARYING STEAM PRESSURE
SCALE 1 INCH = 0. 1 H. P.



FRICTION OF STEAM PACKINGS.

Table I.

Kind of packing.	Number of trials.	Total time of run in minutes.	Average horse-power consumed by each box.	Horse-power consumed at 50 pounds pressure.	Remarks on leakage, &c.
1	5	22	0.091	0.085	Moderate leakage.
2	8	40	0.049	0.045	Easily adjusted; slight leakage.
3	5	25	6.037	0.036	Considerable leakage.
4	5	25	0.159	0.176	Leaked badly.
5	5	25	0 095	0.081	Oiling necessary; leaked badly.
6	5	25	0.368	0.400	Moderate leakage.
7	5	25	0.067	0.067	Easily adjusted and no leakage.
8	5	25	0.082	0.082	Very satisfactory; slight leakage.
9	3	15	0.200	0.182	Moderate leakage.
10	3	..	0.275	....	Excessive leakage.
11	5	25	0.167	0.172	Moderate leakage.
12	5	25	0.266	0.330	Moderate leakage.
13	5	25	0.162	0.230	No leakage; oiling necessary.
14	5	25	0.176	0.276	Moderate leakage; oiling necessary.
15	5	25	0.233	0.255	Difficult to adjust; no leakage.
16	5	25	0.292	0.210	Oiling necessary; no leakage.
17	5	25	0.128	0.084	No leakage.

Table II.

Kind of packing.	Horse-power consumed by each box, when pressure was applied to gland nuts by a 7-inch wrench						Horse-power before and after oiling rod.	
	5 Pounds.	8 Pounds.	10 Pounds.	12 Pounds.	14 Pounds.	16 Pounds.	Dry.	Oiled.
1	0.120	.....	0.136	.....	.....	.....	.....	.....
3	.....	.....	.....	.....	.....	.....	0.055	0.021
4	.....	0.248	.....	0.303	.....	0.390	0.154	0.123
5	.....	0 220	.....	.....	.....	.....	.....	.....
6	.....	0.348	0.430	.....	.....	.....	0.323	0 194
7	.....	0.126	0.228	0.260	0.330	0.340	0.067	0.053
8	.....	0.363	0.500	0.535	0.520	0.533	0.533	0.236
9	.....	0.666	.....	.....	.....	.....	0.666	0.636
11	.....	0.465	0.454	.....	.....	.....	0.454	0.176
12	.....	0.161	0.242	0.359	0.454	.....	0.454	0.122
13	.....	0.317	0.394	0.582	.....	.....	.....	.....
15	.....	0.526	.....	.....	.....	.....	.....	.....
16	.....	0.327	0.860	.....	.....	.....	.....	.....
17	.....	0.198	0.277	0.380	.....	.....	.....	.....

Central Pennsylvania Notes.

HARRISBURG, PA., March 19, 1900.—Notwithstanding the slight weakening of prices the iron and steel trade in this district is in a most encouraging condition. Orders are being placed for a considerable amount of material for future delivery. With iron ore costing 100 per cent. more than a year ago, and coke even more, the manufacturers of iron and steel do not see how it is possible for present conditions to change very soon.

There has not been so much trouble about the supply of coal and coke during the last week or two, and it so happened that the supply at the Pennsylvania Steel Works and other large plants was large enough to tide over the brief blizzard of the last week.

The Pennsylvania Steel Company have closed a contract for considerable bridge work on the Vera Cruz & Pacific Railroad of Mexico, amounting to at least $250,000. The same company have just finished a rush order for a Paris railway to the exposition grounds. About six weeks ago a shipment of steel railway frogs was made for the construction of the road to the exposition grounds in Paris, but the freighter with this consignment of material is a month overdue, and has been given up as lost. A duplicate order was cabled in the early part of last week and the frog, switch and signal department has been running continuously on the order so as to complete it for shipment to-day. As the road must be completed by May 1, after which time no blockading or tearing up of the streets will be allowed, an effort is being made to get the frogs to Paris by April 1. Deeds were recorded this week for the large tracts of land adjoining the present plant recently purchased by the company, and a railroad has been run across this property, which will be used in filling up low portions. The new frog, switch and signal department to be erected will probably be the largest in the country.

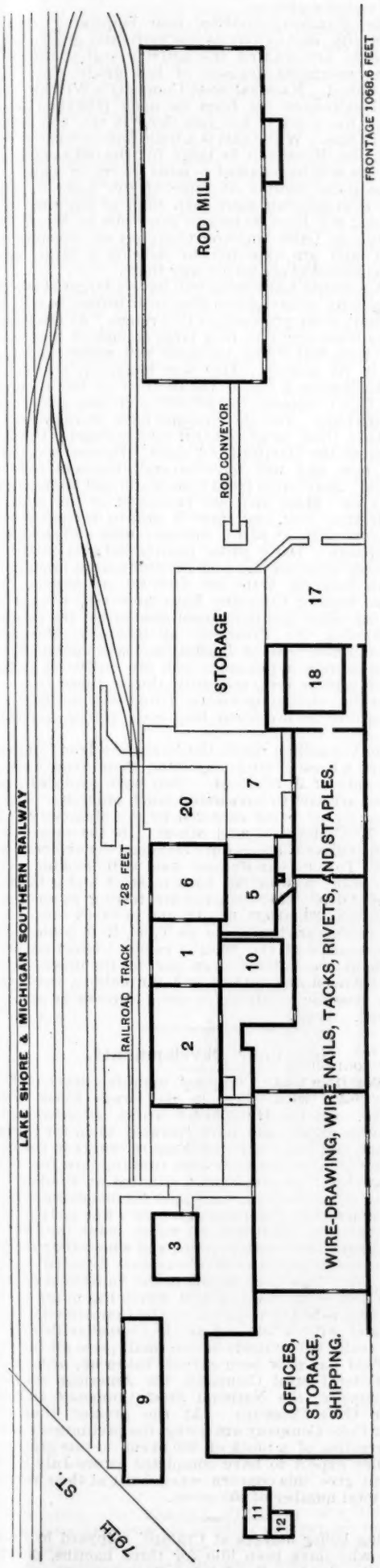
Stockholders of the Susquehanna Iron & Steel Company do not believe that it will be necessary to erect a pipe mill in connection with the Columbia plant. It was thought at one time that this would be done owing to the fact that the National Tube Company would not pay the price for skelp iron which the Susquehanna Company demanded. During the last month, however, the tube company have been buying the Susquehanna's skelp and the skelp mills are now in steady operation. The books of the company are represented as being crowded with business at good prices, and it is said the annual report will show a most profitable condition of affairs.

The Harrisburg Traction Company have about decided to extend their line from this city to Rockville, a distance of 5 miles.

The Middletown plant of the National Tube Company is gradually resuming operations in all its departments. The plant of the Raymond & Campbell Company, now being operated by a Philadelphian, is in full operation and has a large demand for their products.

All the departments of the Central Iron & Steel Company will be operated to their fullest capacity this week, having started up this morning after a brief suspension for a change of rolls.

The Harrisburg Rolling Mill Company have just completed a large shipment of skelp to Liverpool, England, and could do a larger export business if the domestic trade was not so great. All the manufacturers of iron and steel and their products in this section are of the same mind with respect to the foreign trade. They believe that such trade is going to be sufficient to take up the surplus production of the mills of this country for years to come and thus maintain good prices. S.



THE GRAND CROSSING TACK COMPANY.—GROUND PLAN.

The Grand Crossing Tack Company.

Recent additions have been made to the works of the Grand Crossing Tack Company, at Grand Crossing, Chicago, which are of importance to the wire trade. Prominent among these additions is the erection of a mill for rolling wire rods. The company are now independent of other sources of supply of this essential material in the manufacture of wire. The mill has been running a sufficient time to get into smooth working order and is now turning out a product so large as to meet the requirements of the company's finishing departments and leave a surplus for sale. It is, however, not being pushed to its full capacity, which from the present rate of working is easily 200 tons per full day, double turn. The plant has been further improved by the increase of the facilities for wire drawing, the enlargement of various finishing departments, and the extension and rearrangement of the offices and shipping department to meet the requirements of the greatly increased business. It is but a few years since this company were known as exclusive manufacturers of tacks and small nails. Then they gained a footing in the wire nail trade. Now, by their persistent enterprise and progressive methods, they have become factors in the wire rod and merchant wire trade. The ground plan of their works, presented herewith, shows how extensive an establishment they are operating.

The ground occupied is approximately 3½ acres, consisting of a long and comparatively narrow tract, varying in width from 150 to about 175 feet. It extends for its full length of about 1070 feet along the tracks of the Lake Shore & Michigan Southern Railway Company, thus securing the most convenient facilities for rail connection with any department for the receipt of materials and shipment of finished products. Direct rail connections are had with the Pennsylvania, Nickel Plate, Baltimore & Ohio, Illinois Central and other leading lines. The plant has been laid out to secure the most economical results in handling material from the earliest stages of manufacture until it reaches its most finished form and is ready for shipment. Steel billets are received at the extreme north end of the plant, in the stock room of the rod mill, and in the process of rolling pass to the south toward the pickling, baking and annealing department; thence the rods go further south to the wire drawing department. Some of the wire goes further south to the wire nail machines, while other portions go to adjoining departments to be used in manufacturing other products. Storage and shipping rooms are placed at points convenient for the assemblage and packing of goods and for loading them on cars. The plant comprises 20 separate buildings, all but a very few being substantially constructed of brick and iron. Three of the largest buildings—namely, those containing the wire-drawing machinery and machinery for making wire nails, tacks, rivets and staples—are three stories in hight, the cooper shop and box factory is two stories and the others are one story. Two distinct power plants are employed. One of these is exclusively used for running the rod mill. The other, which is located near the center of the plant, is used for operating the wire drawing and finishing departments. The total capacity of the power plants is 1540 horse-power for the boilers and 2315 horse-power for the engines.

The rod mill building, but recently completed, is a particularly fine structure, having a steel frame, brick walls and terra cotta roof, making it absolutely fireproof. Its size is 73 x 200 feet. This seems small for a rod mill, especially to those who have been accustomed to the type of mills requiring long, sloping floors to accommodate the great loops of partly finished rods between the passes. The rod mill in use here, however, is one of the latest improved Morgan continuous mills, which requires comparatively small space, the rolls being arranged in parallel stands, and increasing in speed from the first or roughing roll until the finishing roll runs at 600 revolutions per minute and delivers the rod to the reel at the speed of 30 feet per second. The compactness of the mill enables the installation in this one building of the boilers, engine, electric light dynamo and heating furnace, and besides leaves ample room for the stocking of 500 tons of steel billets. The billets used are of either Bessemer or open hearth steel, 1¾ inches square and 30 feet in length, each billet making a 300-pound bundle of rods or wire. The heating furnace is an improved Morgan furnace, operated with producer gas, the producers being located in an annex on the side of the building adjacent to the furnace, to which coal is taken overhead through the mill building from the railroad tracks on the other side The billets are charged at one end of the furnace and drawn out at the other end directly into the roughing rolls of the rod mill. This mill is driven by a 1500 horse-power Cooper Corliss engine, located in an adjoining room, which is separated from the rod mill room by a full partition. As the fin-

ished rods pass from the last rolls they are wound into a coil on an inclined reel, from which the coil slides to an endless moving platform or conveyor, depressed at that end and gradually rising as it leaves the mill building until its outside end is high enough to drop each coil on a truck, which enables it to be taken to the pickling room or to storage. The principal features of this mill were covered in an article which recently appeared in these columns describing a Morgan "composite" mill.

Referring to the ground plan, buildings Nos. 1, 2, 3, 5, 7, 11, 17 and 18 contain brass plating, blacksmithing, tinning, galvanizing, copper plating, annealing, baking, pickling and japanning appliances. Nos. 6, 10 and 20 contain the power and electric light plant for the entire works, except the rod mill. No. 9 is a fire proof building, used as a cooper shop and box factory. No. 12 is a fire proof building, used as a pattern storage warehouse. The purposes for which the other buildings are used are so stated on the diagram.

The products of the company comprise Bessemer and open hearth wire rods, merchant wire, standard wire nails, miscellaneous wire nails, tacks, staples, brads, rivets, brass and iron shoe nails and small nails for general purposes. Their output of standard wire nails is 1000 kegs a day. They are now in a position to make rods as well as wire for the general market.

Lake Iron Ore Matters.

DULUTH, MINN., March 11, 1900.—Ice conditions on Lake Superior are just now the most interesting factor of the ore situation. There is far more ice on the lake than was supposed probable a few weeks ago and the latest reports are fully bearing out the suggestions contained in this correspondence a week ago, that not much earlier opening than usual is to be expected. The average date of Sault Canal opening for ten years, which governs Lake Superior, has been about April 22. Upper lake railroads are beginning preparations for service and will be putting on the first ore trains shortly. They propose to have their docks full by April 15 at the latest. At many properties stock pile room is even now pretty well exhausted, and there is call for as early shipment to dock as can be had. All over the region the amount of ore coming up daily is wonderful.

On the Mesaba range the work of drilling for ore under the village of Virginia has proven successful, and a drill has penetrated 30 feet of surface and 145 feet of soft ore of good grade. This land lies directly south of the Sauntry and in a creek bottom. It is part of a great bay, lying west and south of the inclosing granite and quartzite that bends northeast from the Fayal and Adams mines for a distance of more than 6 miles, and swings to the west in the south part of T. 59, R. 17. In the portion of this bay lying south, east and north from the village of Virginia and from, say, the Rouchelean property in Section 17 north into T. 59, R. 17, there seems to be a deposit of ore whose magnitude can even now be only guessed at, though some of the first mining on the range was carried on in the very center of the area. Cornering on the Oliver of this group is the Commodore. Two years ago its ore body was supposed to be about 2,500 000 tons. To-day it has a proved body of nearly three times that, and of splendid grade. This is a 40-acre tract. The Jones 40, directly east of it, has just been taken by the Republic Iron & Steel Company, and lying against these two to the north are three 40's that are claimed to have a fine ore. Still north and adjoining these last are three more that are being successfully explored, and north again of them a mine is being opened. It is the Fay, and the first tap of work was done less than 60 days ago. Now a shaft is in ore with a small stock pile and another will be started the coming week. From the two it is expected to ship 100,000 tons this year. Its ore is of fine quality, so far as is known. North of this and adjoining it another mine will be shipping this year, though it has as yet nothing but some test pits Adjoining all these to the west is the big Sauntry, which is to ship 500,000 tons this year. Its ore is not of such quality as the others.

Trial of the three-shift day at Ishpeming has been abandoned by the Oliver Company. They have some 30 mines working in this region and could not make an exception in favor of part of their properties, and the plan was not a success. Aside from Ishpeming the eight-hour day is not tried at any lake iron or copper mines except the Mansfield. Wages have been raised at Ishpeming to bring in the help needed to make the expected product. It is quite possible that further increases will be necessary elsewhere. The Oliver Company have 2000 men on their Marquette range pay rolls.

Suit has been brought against the Cleveland Cliffs Company that if successful will stop their explorations on the Breitung lands, near Negaunee. In 1857 a 99 year lease was given the predecessors of the Cleveland Cliffs Company by which they had the right to enter and mine ore from these lands and pay no royalty on any ore manufactured into iron in Marquette County. Now the Breitungs claim the successors to the original lessee have no rights under it.

At the Winthrop location, near Ishpeming, there is much activity, and so long as the particular grades of ore found there are wanted the activity will continue, as there are enormous deposits of low grade easily and cheaply mined. National Steel Company's Winthrop this year will ship more ore from its open pits than ever in the past. No. 4 pit is 125 feet deep in ore, and is 200 x 400 feet in size. While this is a little hole compared with many on the Mesaba it is large for the old ranges, and many years will be required to mine its ore in sight. At the same point Section 21 mine of the Lake Superior (Oliver) is employing more men than at any time in its history and will have its largest stock pile by May 1. The Pittsburgh & Lake Angeline Company are opening into ore also, and are expected to develop a large mine. Other explorations are under way there.

The Cleveland Lake mine will have a larger stock pile at the opening of navigation than ever before, in common with almost every property on this range. At the Princeton mine what seems to be a large deposit of high grade ore has been found, and the mine will make the largest output in its history. This was bought a year ago by Pickands, Mather & Co of the receiver of the Escanaba Land & Iron Company for $80,000, and was a very profitable purchase. The old company have reorganized and will handle their large mineral land acreage. Hoisting has begun at the Hartford old shaft. Barasa is hoisting steadily now and will have several thousand tons by navigation. Beaufort is freed from water and Michigamme is nearly so. More men are employed at the mines of Bessemer than ever, and there is said to be room for 500 to 800 more men at $2 for common labor and as high as $3 for miners. Daily paper reports Saturday morning that Joseph Sellwood had sold his Brotherton mine to the American Steel & Wire for $100,000 are untrue. The American Mining Company have, however, bought the lease of the old Stegmiller, sometimes called the Brotherton, adjoining the Princeton at Swanzey, Marquette range, from Stegmiller & Lindsay and will operate it. It has been merely a prospect, but Mr. Sellwood, whose judgment seldom errs, evidently thinks there is ore. I hear that the original operators drifted into the foot wall instead of into the ore when they were trying to make a mine.

On the Vermillion range the Minnesota Iron Company have taken a lease of lands adjoining their Armstrong, in the west side of T. 62, R. 14. They have explored Armstrong and are said to have found much ore there. Large tracts near by are being explored by the Mahoning Company, J. M. Underwood and others. In the same town, 62—14, the Oliver Company are commencing explorations. South of Tower explorations are still looking well. Chandler mine has 200,000 tons in stock and is hoisting 2500 tons daily. This company are testing in Section 7, T. 63, R. 12, in 32 and 33, 63—12, and in 25, 63 —13.

Explorations are beginning in T. 63, R. 9, probably an eastern extension of the Mesaba range. These are probably to be in the northwestern part of the town, on the contact between the schists and the gabbro, that being the only possible location for ore. Success is much to be doubted. D. E. W.

New Coke Developments.

The Bessemer Coke Company, manufacturers of Connellsville coke, with offices in the Lewis Block, Pittsburgh, Pa., own the Humphreys works, situated in the Connellsville region, and have operated them for the last four years, and also own the Empire works in the Connellsville region, which have been running now for about a year, and the Duquesne works, situated at Bradenville, Pa., in what is known as the Upper Connellsville region. The Bessemer Coke Company also own a fine body of coal lands situated at Lechrone, at which point the Federal Steel Company are erecting ovens, and which they bought some time ago when attention was first directed to this field of coal. This land is not in the Smithfield district as stated, but is in the new field which lies to the southwest of, and is a continuation of, the Connellsville seam of coal, and will be classed as the Connellsville region, which it really is. Outside of one small piece all the coal in this field has now been entirely taken up, principally by the Federal Steel Company, the American Steel & Wire Company, the National Steel Company and the Bessemer Coke Company. At the present time the Bessemer Coke Company are doing the preliminary work for the erection of a block of 200 ovens on this property, which they expect to have completed before July 1, and which will give this concern when built at their various works a total number of 665 ovens.

Striking boiler makers at Cramps' shipyard in Philadelphia, who have been idle for three months, decided at a meeting held on Sunday to return to work.

The Dinkey Standard Controller.

In the installation of controllers for electric motors it frequently ocurs that only a limited amount of space is available. or, for some other important reason, compactness of controller is of great advantage. A case in point is illustrated in the accompanying cut, showing the installation of controllers in the Wellman-Seaver Engineering Company's overhead charging machine. In this machine four separate controllers are required to control as many separate and distinct operations of the machine. Hence the desirability of reducing to a minimum the space required for each controller. This requirement is met by the controller shown, which is of the following dimensions: Base, 24 x 9 inches; hight to top of frame, 32 inches; hight to top of lever, 54 inches; width of controller at widest point, 11 inches. The resistance boxes are contained in the machine, and there are no separate resistance boxes to be installed under the floor or elsewhere outside of the machine which would require a large number of extra connections. There are only four wires to connect in an entire controller, hence it can be quickly installed, removed or replaced. The advantage thus secured in case accident to the electrical equipment should cause the controller to burn out is readily apparent, as by disconnecting four terminals the machine can be taken out and a duplicate machine slipped into place and connected instantly and without loss of time. There are no interior cables; every contact and connection is in plain view and easy to get at. A single lever controls both the forward and backward motions of the machine, no reversing switch being required. When the lever is in a vertical position all current is shut off from the motor, and the lever when in this position is securely held by a positive stop which prevents jarring onto the contact. The controller contains no combustible material and is fire proof. It can be placed on the floor of the building or cage, or can be inverted and anchored to the ceiling, as may be most convenient.

This controller is manufactured by the Electric Controller & Supply Company, Cleveland, Ohio.

The coal miners' and operators' joint arbitration scale committee of district No. 2, in session at Altoona, Pa., last week, adopted the following scale for the year beginning April 1, and it was afterward ratified by both operators and miners: Price for pick mining to be 60 cents per gross ton or 53½ cents per net ton. Machine loading to be given five-ninths of pick mining, plus one-half, equaling 33⅜ cents per gross ton, or 30 cents per net ton. Machine cutting and scraping advanced the same percentage of increase as picking, viz., 20 per cent. Drivers receiving less than $2 per day to get $2.25 per day; drivers receiving $2 and more to get 20 per cent. increase. All other labor to get 20 per cent. increase. The operators were authorized to make such collections through the office as the employees agree upon, the day to be ten hours. The scale affects over 40,000 bituminous coal miners.

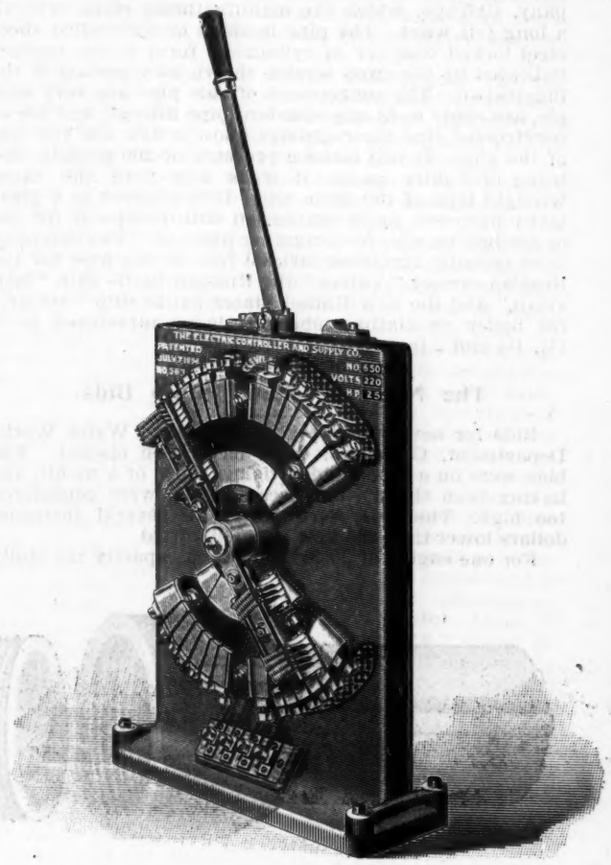


Fig. 2.—Front View of Controller.

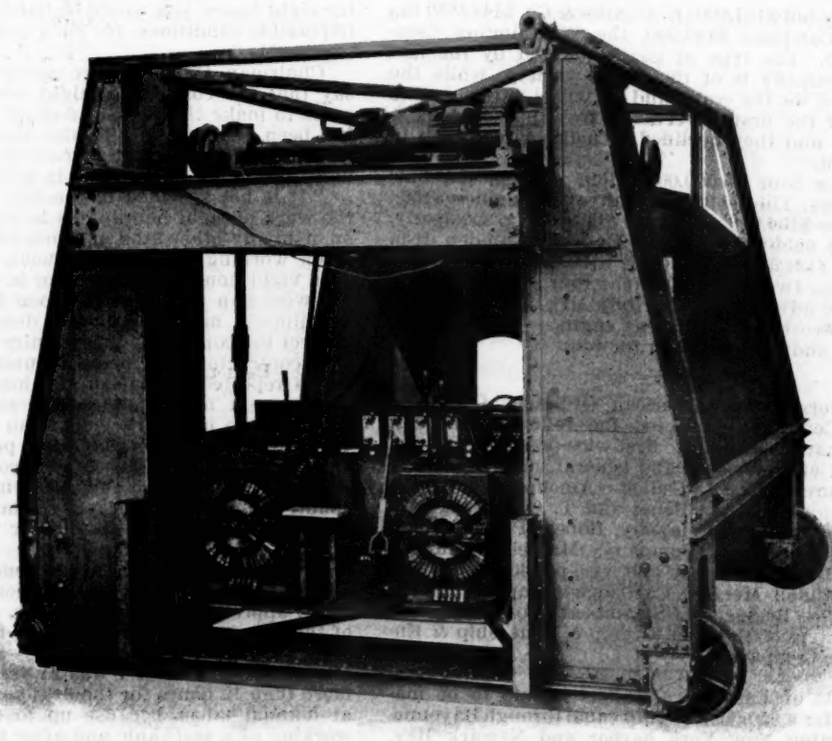


Fig. 1.—Controller on Wellman-Seaver Overhead Charging Machine.

THE DINKEY STANDARD CONTROLLER.

The Statler-Bischoff Low Pressure Pipe.

An illustration is given herewith of a steel pipe recently placed on the market by the Statler-Bischoff Company, Chicago, which the manufacturers claim will fill a long felt want. The pipe is made of cold rolled sheet steel locked together in cylindrical form in the manner indicated by the cross section shown as a portion of the illustration. The connections of this pipe are very simple, are made to fit any standard pipe fittings, and are so constructed that the couplings allow a flow the full size of the pipe. It will stand a pressure of 200 pounds, and being of lighter gauge it costs less than the usual wrought pipe of the same size. It is adapted to a great many purposes, as in connection with pumps or for use in conducting oils, for irrigating pipe, &c. The company have recently furnished 200,000 feet of this pipe for the Russian cruiser "Variag," the Russian battle ship "Retvizan," and the new United States battle ship "Maine," for boiler circulating tubes. It is manufactured in 1, 1¼, 1½ and 2 inch sizes.

The New Cleveland Pump Bids.

Bids for new pumps for the Cleveland Water Works Department, Cleveland, Ohio, have been opened. The bids were on a second advertising, those of a month ago having been thrown out because they were considered too high. The bids were nearly all several thousand dollars lower than the first ones submitted.

For one engine of 20,000,000-gallon capacity the Holly Mfg. Company bid $151,600, E. P. Allis & Co. $147,000, the Blake Mfg. Company $146,900, the Worthington Company $119,000. The type of engine offered by the last mentioned company is of the piston variety, while the city advertised for the crank and fly wheel pattern. The lowest bid of the first advertising was that of Allis & Co., $147,000, and they declined to make a reduction in the second bid.

For two or four 25,000,000-gallon engines the bids were as follows: The Holly Company, two engines, $156,000 each: four $154,900 each; the Blake Mfg. Company, two, $156,000 each; four, $154,000 each; Camden Iron Works, two, $134,500 each; four, $129,000 each; the E. P. Allis & Co., two, $165,000 each; four, $165,250 each. On the former advertising the Holly Mfg. Company submitted the lowest bids for these engines—viz., $156,600 each for two and $154,900 each for four.

The directors of the American Ordnance Company, Bridgeport, Conn., have elected the following officers: President, Charles R. Flint; first vice-president, E. W. Very; second vice-president and general manager, H. N. Sweet; treasurer, Chas. L. Gulick. Among the directors of the company are L. V. Benet and T. C. Favarger of the Hotchkiss Ordnance Company, Robert P. Linderman of the Bethlehem Steel Company, Marcellus Hartley and Wm. J. Bruff, president and vice-president respectively of the Union Metallic Cartridge Company, N. W. Bishop of the Bridgeport Steamboat Company, and Henry W. Cramp of the Wm. Cramp & Sons Ship & Engine Building Company.

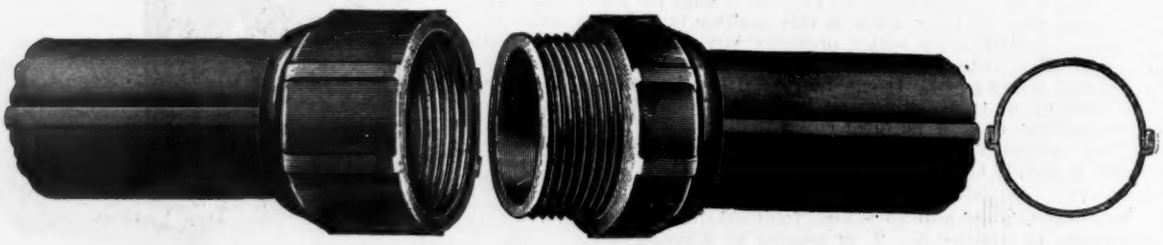
A syndicate of Eastern capitalists is said to be maturing plans for a $50,000,000 ship canal through Bayonne, N. J., connecting New York harbor and Newark Bay. The canal, as projected, would be 200 feet wide, 30 feet deep at low water and 8 miles long. It would give 16 miles of additional water front to the facilities of the port of New York. The syndicate have acquired control of the New York and Newark Bay Ship Canal Company, already chartered.

Senator McMillan has introduced a bill in Congress to authorize the issue of $50,000,000 of postal check notes in denominations between 5 cents and $5, for transmission through the mails.

Hearing on the Eight-Hour Bill.

WASHINGTON, D. C., March 20, 1900.—The House Committee on Labor, which has under consideration the eight-hour bill, has held additional hearings. The most prominent persons heard have been William Sellers of Williams Sellers & Co.; ex-Secretary Herbert, representing the Union Iron Works, the California Powder Works and other firms; Judge McCammon, representing the Cramps, and Messrs. Gompers and Warner, representatives of certain labor organizations. The statements made by the labor leaders were specially significant as indicating the methods by which strikes are organized and promoted by men who make it their public boast that, while they are not employed in any kind of labor themselves, they attempt to "regulate the wages in the plants throughout the country." The statement of Mr. Sellers was of unusual interest, owing to his long practical experience, and was in part as follows:

"I wish to call special attention to some features of the bill which strike me as being exceedingly objectionable, to use no stronger word. One is the infringement of personal liberty, for the bill says that no man shall be permitted to work more than eight hours a day. I suppose this is the first time in the history of legislation that men have been forbidden to work if they want to, and the extra penalty that is inflicted for working more than eight hours in a day is not applied to the man who works, but to the man who permits him to work. Not only that, but if he should work five minutes in excess of a day or if you permit him to work five minutes over the eight hours, you would be liable to a fine of $10 under impossible conditions, for such supervision is absolutely impossible."



THE STATLER-BISCHOFF LOW-PRESSURE PIPE.

Chairman Gardner here interrupted the witness to say that the committee might possibly modify the bill so as to make the penalty depend upon the offense having been committed with the knowledge or consent of the employer, but Mr. Sellers replied that he could only discuss the bill in the form in which he found it.

"It is not specified in the bill," he continued, "that the work of eight hours must be upon Government work or upon any other kind of work, but if in any day when he is working upon Government work he works more than eight hours the contractor is to be fined $10.' Now, the workman may take his noon hour to do some work for himself, as he frequently does, and then he would subject the contractor to a penalty of $10 under this bill. The contractor has no opportunity to defend himself. He is reported by one of the inspectors, of whom the Government must necessarily employ an army to see that men do not work more than eight hours in a day. The Government says that these penalties shall be taken out of any sum then due or to become due to him. Well, I do not believe any such system would work in this country, and I think it is a mistake for those who call themselves friends of the laborer to attempt such legislation.

"When I first went at the business in which I am now engaged I was in my fourteenth year, and I served as an apprentice for seven years, and during the whole of that time would work 12 hours for a day's work. I do not think it disagreed with me—at least I am alive to tell it now—and after I was 21 years old I worked much more than 12 hours for the first year or two, not actually at manual labor, because up to that time I had been working as a mechanic and after that I had the position of a superintendent. But it must be borne in mind that in our business actual work, laborious work, to-day is done by machines and not by men. When I commenced the business it was done largely with the hammer, the cold chisel, the file and the turning lathe. We then actually had the manual labor to do and a vast deal of it, and we worked then 12 hours a day. I myself fitted up two slide lathes, beds and heads and rests, with a hammer, cold chisel and a file. We had no planing machines, and there were but four planing machines in the United States at that time. To-day a shop without a

planing machine is of no earthly account. The hard work is done by machine and a man supervises it all and sets the work, and has nothing to do so long as that setting lasts.

"Now, so far as I know, I am not aware that there is any standard number of hours that a man shall work for a day's work except by custom. I know that the change from 12 hours to 10 hours was effected gradually and without any legislation whatever. If the time comes when it will be for the interest of the workmen and the manufacturer to work eight hours a day that change will be made then. I think it is probable that some time or other that change may come about, but it will come when the organization of shops is so changed that you can have three sets of hands. It is possible for a great deal of work to be done in that way and it would result in largely increased production in some plants. That may come about, but it won't come forcibly, for the damage resulting under such conditions would be incalculable.

"There are two general classes of work done at our establishment, one, shafting and mill gearing and the fitting up of machinery for power distribution; the other is the building of machine tools—that is, the power tools that the machine establishments all over the country require—such as planers and lathes and drilling machines, gearing and cutting machines and a great variety. It did not use to be so, but nowadays this class of work is largely assisted by special tools. For the Government we make all kinds of machine tools, traveling cranes, hoisting machinery, &c., for the navy yards and arsenals. Only a very small percentage of our work is done directly for the Government, but in the last year, for example, a very considerable percentage has been done indirectly—that is to say, for the shipyards in which Government vessels are being constructed, &c."

In reply to a question as to whether it would be practicable to separate the Government work from commercial work, and do the former on an eight-hour basis and the latter on a ten-hour basis, Mr. Sellers replied:

"Oh, no; that would be absolutely impossible. I do not know that we should render ourselves amenable to the pains and penalties of this bill in building machinery for private parties that they might or might not devote to Government work, but that would certainly be an important question. If we were building machinery for a shipbuilder who had Government contracts as well as commercial work it would not be practicable for us to say to what uses he should put that machinery."

Taking up the subject of export products, Mr. Sellers said:

"We have always built more or less machinery to go abroad, and from 25 to 30 per cent. of our entire output is exported. Long before the war we built a great deal of machinery to go to Russia, but nearly all the machinery that we built until within the last five or six years was not sold on commercial principles—that is, it was not sold because they could not get a better machine for less money. What the purchasers wanted was the model for a machine for themselves to build. They could afford to pay a price for that in order to have something on which to remodel their own machinery. A great deal of machinery was built for that purpose, but we did not consider the trade particularly desirable. In later times, since our iron and steel prices have been reduced to compare favorably with those of other countries, we have received large orders for machinery from all over the world—China, Japan and all of Europe.

"Now, as to the effect upon our export trade of this bill. I think it will be very injurious. It would certainly cut us off largely. What we are now selling is not models but commercial work upon a commercial basis. We could not get the work if the parties abroad could get the same thing or a similar thing for less money than we charge. A very large proportion of the increase of our exports of iron and steel products consists of articles in which a great deal of fine work is done, and if the eight-hour system should be adopted in this country it would greatly increase the cost of this class of products."

At this point the discussion became general, and Mr. Gompers took occasion to say that "there is not one instance a man can show where the hours of labor in a manufacturing plant have been reduced that the wages of the man have not been increased and the production of that plant also increased." Mr. Herbert and Mr. Sellers at once demanded that Mr. Gompers should give an example in support of his statement, and as that gentleman failed to do so Judge McCammon requested permission to read an extract from the report of the Special Committee on Shorter Working Days made to the American Federation of Labor at its annual meeting in Detroit last December, as follows:

"We deprecate the promulgation of the assertion sometimes made that workmen will produce as much in eight hours as they will in nine. If this were true the eight-hour working day would be shorn of one-half of its beneficial results, and the very purpose for which we strive would be defeated, for one of the first duties that devolves upon the labor organizations is to try to bring about such a condition of affairs as to enable all those who wish to work to find some remunerative employment."

"This is signed," said Judge McCammon, "by the committee, and the record closes on the subject with the statement that the report of the committee was received and adopted. This I would desire to have placed side by side with the assertion last made by Mr. Gompers."

Mr. Herbert read a statement prepared by President Scott of the Union Iron Works of San Francisco concerning the bill, which was in part as follows:

"After careful consideration of the effect that such an enactment would have on our work, we feel that, so far as we can with our present experience determine, such a law would virtually destroy the labor of many years in establishing a shipbuilding industry that can now barely hold its own in competition with other establishments where both labor and material are obtained at less cost than with us. Our present system works satisfactorily, because private contracts and Government contracts can be carried together, but the passage of the law now contemplated would result in either one or the other having to be given up. Included in the private contracts is a large amount of labor work that is paid for at regular rates for time and material, and all our time is reckoned by the hour and we run our works ten hours. Now a man on Government work at 30 cents an hour would only earn $2.40 per day of eight hours, which would be all he would be allowed to work, although he might desire to work longer. Or, on the other hand, to bring his wages up to the same rate per day it would be an increase of 25 per cent. In the one case he would be delighted, but those on Government work would demand a like rate per hour. In the other case he would refuse to work on Government work earning 60 cents less per day than he could earn on other work. The inevitable result would be that Government work would cost 20 per cent. more than it now does, while it would be hardly possible to obtain material at all."

Continuing, the statement covered much of the ground previously traced by Mr. Harrah of the Midvale Steel Company and Mr. Sellers as to the difficulties of dividing the plant between Government and commercial work.

W. L. C.

Mineral Production of Canada in 1899.

The Canadian Geological Survey has issued a summarized statement of the mineral production of Canada in 1899. The figures which, in some cases, are not based on complete returns, and are subject to revision, show a value of $47,275,512. The principal items are given as follows:

Metallic—	*Quantity.	*Value.
Copper (fine, in ore, &c.), pounds	15,078,475	$2,655,319
Gold, Yukon district	$16,000,000	
Gold, all other	5,049,730	
		21,049,730
Iron ore, tons	77,158	248,372
Lead (fine, in ore, &c.), pounds	21,862,486	977,250
Nickel (fine, in ore, &c.), pounds	5,744,000	2,067,840
Platinum, ounces	55	835
Silver (fine, in ore, &c.), pounds	3,078,837	1,834,871
Total metallic		$28,833,717
Non-metallic—		
Arsenic, pounds	114,637	$4,872
Asbestos and asbestic, tons	25,285	483,299
Coal, tons	4,565,993	9,040,058
Coke, tons	100,820	350,022
Gypsum, tons	244,566	257,329
Petroleum, barrels	808,570	1,202,020
Cement, Portland, barrels	255,366	513,983

TOTALS.

1899	$47,275,512	1892	$16,628,417
1898	38,661,010	1891	18,976,616
1897	28,661,430	1890	16,763,353
1896	22,584,513	1889	14,013,913
1895	20,639,964	1888	12,518,894
1894	19,931,158	1887	11,321,331
1893	20,035,082	1886	10,221,255

*Quantity or value of product marketed. The ton used is that of 2000 pounds.

There was a marked increase in the value of copper produced, notwithstanding a decrease in the actual output of the metal, caused by the large advance in prices. The main features of last year's Canadian copper mining record consisted in decreases in the production of the Quebec and Ontario mines, for, although in the latter case the amount of ore treated was greater than in 1898, the content of copper was lower. The shipments of ore from the Parry Sound district, although small, constitute a new feature in this industry. In British Columbia there was a large advance in the production, chiefly from the Rossland mines. The value of Canadian gold production shows a large percentage increase, in the Yukon and Ontario especially, the former having grown 60 per cent. and the latter over 58 per cent.

Tennessee Coal, Iron & Railroad Company.

The directors of the Tennessee Coal, Iron & Railroad Company on Saturday declared a dividend of 2 per cent. on the common stock. Nothing was said as to whether the dividend was a quarterly one or not, but it is the expressed intention of some large interests in the board to keep the stock on an 8 per cent. basis. It is understood that in view of the facts that no dividends had been paid on the common for years the directors thought it might be somewhat inadvisable to openly declare the rate of 2 per cent. as a quarterly one. In addition to the dividend on the common stock, the directors declared a dividend of 54 per cent. on the preferred stock, clearing up all back dividends on this issue which has not already assented to the proposed exchange for new common stock on the basis of 180 shares of the latter for each 100 shares of preferred. Both dividends are payable May 1. Books close April 20 and reopen May 2. The company have extended without penalty to April 19 the time for preferred stockholders to exchange their stock on the basis mentioned. About 90 per cent. of the preferred stock, it is understood, has already assented to the exchange.

The annual report of the company was made public on Saturday. Following is a summary of the financial statement for the year ended December 30, 1899:

	1899.	Changes.
Profit on mining and transportation	$1,864,179	Inc.. $1,040,796
Profit on s. f. bonds	1,526	Inc.. 1,526
Total profits	$1,865,705	Inc.. $1,042,322
Interest accrued	577,832	Dec.. 38,602
Balance	$1,287,873	Inc.. $1,080,924
Guarantees	76,962	Inc.. 76,962
Surplus	$1,210,911	Inc.. $1,003,962
Profit on purchase Rob. mine	.....	Dec . 45,000
Surplus	$1,210,911	Inc.. $958.962
Various losses	.....	Dec.. 26,973
Surplus	$1,210,911	Inc.. $985,935
Surplus brought forward from 1898	97,051	
Total surplus	$1,307,962	

The bond debt of the company, minus sinking fund credits, in 1898 was $9,179,998. In 1899 there were retired $83,500 bonds of various constituent companies and there was an increase in the sinking fund of securities available for the purchase of bonds to the amount of $18,078, a total of $101,578, which left the net funded debt on December 31, 1899, $9,078,420. These figures, however, do not include the $1,100,000 6 per cent. bonds of the Alabama Steel & Ship Building Company, on which the Tennessee Coal & Iron Company have guaranteed principal and interest.

In the course of the year the company purchased the property of the Sheffield Coal, Iron & Steel Company for $850,000. On this account the company's floating debt shows an increase for the year of $369,301. On the other hand there has been an increase in quick assets of $1,026,324, in slow assets of $21,563 and in ultimate assets of $286,785, a total increase of $1,334,672 in value of assets, or a betterment of the company's position as to floating debt of $965,371. The floating debt amounts to $2,478,944, but the total assets against it amount to $3,777,235.

The general balance sheet as of December 30, 1899, of the company shows the following:

Assets.

Land account		$20,902,158.51
Permanent investments—		
Collieries, coke ovens and plant	$2,793,299.99	
Blast furnaces and plant	4,841,734.55	
Railroads and equipment	447,080.09	
Foundry, machine shops, saw mill and machinery	121,000.00	
Dwellings, storehouses, depots, offices, stables, &c	598,125.18	
Ore mines, rock quarries and plant	302,688.73	
Prisons and equipment	23,000.00	
Live stock	51,453.02	
Miscellaneous office furniture, telephones, &c	7,600.00	
		9,185,981.56
Stocks and bonds of other companies		262,863.88
Treasury bonds		59,000.00
Sundry debtors on open account	$2,006,781.90	
Less—Remitted on account by agents	797,969.95	
		1,208,811.95
Inventory accounts—		
Salable	$431,282.95	
Convertible	76,409.18	
Consumable	363,883.64	
		871,575.77
Cash items—		
Bills receivable	$607,212.03	
Cash in branch offices	3,583.98	
Cash in bank	360,840.96	
		971,586.97
Suspense accounts		403,397.13
Total		$33,865,375.77

Liabilities.

Capital stock—Common	$20,000,000.00	
Preferred	1,000,000.00	
		$21,000,000.00
Bonded debt—		
Bonds in circulation	$11,066,500.00	
Less other bonds, cash and securities held by sinking fund trustees, for redemption of above bonds	1,988,080.73	
		9,078,419.27
Bills payable		1,137,707.26
Accrued interest T. C. I., not yet due for payment	$213,480.84	
Matured coupons T. C. I., not presented	24,000.00	
		237,480.84
Accrued interest Alabama Steel & Ship Building Company, for which T. C. I. is liable	$33,000.00	
Accrued dividends Alabama Steel & Ship Building Company, for which T. C. I. is liable	13,200.00	
		46,200.00
Sundry creditors on open account—		
Miscellaneous	$693,766.11	
Due employees	209,982.21	
		903,748.32
Reserve fund—		
Rope renewals for inclines	$968.39	
Taxes	53,699.09	
Pig Iron Commission	33,443.78	
Bad debts	30,654.91	
Insurance	10,000.00	
		128,766.17
Outstanding orders for merchandise		25,091.39
Profit and loss (as per Form B)		1,307,962.52
Totals		$33,865,375.77

Referring to the purchase of the Sheffield Coal, Iron & Steel Company, President Baxter says in his report: "After considerable negotiation and with the approbation of the Executive Committee, I succeeded in purchasing this property for $850,000, apart from the inventory of personal property, and took possession of the plant on July 1, 1899. This division earned in six months, July 1 to January 1, $130,218.27, or at the rate of over 30 per cent. upon the purchase money. This would have been much greater but for the fact that they had orders on their books for 57,000 tons taken at very low prices."

Relative to the Birmingham district Mr. Baxter says: "There is no other location in the world where coal, coke, limestone, iron ore, pig iron, steel ingots, billets, wire nails, bricks and cement for building purposes are produced within a circle of 6 miles in diameter, and as to all the elements except the iron ore and limestone, within a circle of 1 mile in diameter; and this condition of things has already attracted such great attention to Ensley that negotiations are now pending with various parties desirous of entering there upon the manufacture of bridges, tin plate, bolts and nuts, steel tubes, hoops and cotton ties."

A Fine Basic Open Hearth Steel Record.

We have received the record given below of the No. 4 open hearth furnace of the National Enameling & Stamping Company at Granite City, Ill., for the week ending March 10. This is claimed to be by far the best record on producer-gas-ore basic practice on a 25 gross ton furnace for a week of six working days. It is as follows:

	Heat number.	Started charging.	Tapped.	Time in furnace.	Pounds ore used.
Sunday 4	1,149	6 00 p.m.	12 30 a.m.	6 hrs. 30 min.	700
Monday 5	1,151	12.50 a.m.	6.55 a.m.	6 hrs. 05 min.	1,000
	1,153	7 20 a.m.	1.10 p m.	5 hrs. 50 min.	800
	1,155	1.30 p.m.	7.40 p.m.	6 hrs. 10 min.	None.
	1,157	8.00 p.m.	2.05 a.m.	6 hrs. 05 min.	600
Tuesday 6	1,159	2.20 a.m.	8.20 a.m.	6 hrs. 00 min.	900
	1,161	8.45 a.m.	2.50 p.m.	6 hrs. 05 min.	900
	1,163	3.15 p.m.	9.30 p.m.	6 hrs 15 min.	600
	1,165	10.30 p.m.	4.20 a.m.	5 hrs. 50 min.	None.
Wednesday 7	1,167	5.20 a.m.	10.35 a.m.	5 hrs. 15 min.	700
	1,169	11.05 a.m.	4.40 p.m.	5 hrs 35 min.	1,000
	1,171	5.10 p.m.	11.15 p.m.	6 hrs. 05 min.	700
	1,173	11.40 p m.	5.00 a.m.	5 hrs. 20 min.	800
Thursday 8	1,175	5.40 a.m.	10.50 a.m.	5 hrs. 10 min.	1,500
	1,176	11.25 a m.	5.00 p.m.	5 hrs. 35 min.	1,200
	1,178	6 00 p.m.	11.35 p.m.	5 hrs. 35 min.	1,600
	1,180	12.00 p.m.	5.27 a.m.	5 hrs. 27 min.	1,500
Friday 9	1,182	5.45 a.m.	11.00 a.m.	5 hrs. 15 min.	1,500
	1,184	11.25 a.m.	5.00 p.m.	5 hrs. 35 min.	1,500
	1,186	5.20 p.m.	10.55 p.m.	5 hrs 35 min.	1,500
	1,188	11.10 p.m.	5.00 a.m.	5 hrs. 50 min.	1,200
Saturday 10	1,190	5.20 a.m.	11.00 a.m.	5 hrs. 40 min.	1,500

This is a total of 22 heats in 137 hours, equal to 23 heats per week of 144 hours, or 6 days. The total charge of metal was 54,300 pounds, basic practice, product about 13 carbon, with producer gas. Previously the furnace had made about 100 heats and it is now in perfect working condition. The above result was obtained without the least attempt at driving. No doubt is felt that the furnace can make 24 heats per week of 6 days, or 144 hours, without being damaged, by a little effort to drive it. The best previous record in this line was 23 heats per week of 7 days plus a few hours. This was done at Homestead with natural gas and the furnace suffered seriously.

As the whole plant at Granite City, including the open hearth furnaces, was designed and built by G. L. Luetscher, who is now with the Otis Steel Company, Limited, at Cleveland, Ohio, this record reflects great credit on his engineering ability.

The Iron Age

New York, Thursday, March 22, 1900.

DAVID WILLIAMS COMPANY, - - - - - - - PUBLISHERS.
CHARLES KIRCHHOFF, - - - - - - - - EDITOR.
GEO. W. COPE, - - - - - - - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - - - - - - - - HARDWARE EDITOR.
JOHN S. KING, - - - - - - - - - BUSINESS MANAGER.

Increasing the Bank Circulation.

Country banks have about 44 per cent. of their capital invested in bonds to secure circulation, while the banks in the reserve cities have a little more than 27 per cent. As the entire capital of national banks is $605,800,000, and the entire amount of bonds deposited by them to secure circulation is only $229,600,000, using the figures from the last report of the Comptroller of the Currency, it is evident that the country banks might increase the circulation by a very large amount, while the reserve city banks are circulating but little more than one-fourth of the notes they might issue. The circulation secured by bonds, in distinction from the circulation in process of retirement, and secured by lawful money, was on September 1, 1899, $200,300,000, or a trifle less than one-third of the aggregate capital of the banks and the amount of notes the law of March 14 would permit them to issue.

The fact that the banks are circulating so much less than they might is certainly not due to a lack of demand for currency. The circulation of the banks is now far less than it was many years ago, when the population and the amount of business done were very much less than now. The downward tendency of the volume of bank currency is due to the very small profit on a circulation secured by bonds worth a high premium. The present commercial activity has led to some increase of bank circulation. But practically all the increase of circulation by New York national banks has been effected by two banks. Evidently city banks, depending chiefly on their discount business for their profits, have been only moderately encouraged by the improved state of trade to add to their circulation.

How much more favorable the new law is to national banks than the old one was is shown by computations in the Treasury as to the profits on circulation secured by 4 per cent. bonds of 1907. On October 1 it was 0.256 of 1 per cent., and on March 14 it was 1.031 per cent. above 6 per cent. on the sum of money invested in the bonds. It may be expected that the banks will generally take out from 90 to 100 per cent. of the face value of the deposited bonds; how far they will go in depositing additional bonds cannot be estimated, but the above increase in the margin of profit will voluntarily lead many banks to increase their circulation by increasing the security, and a small increase of circulation may be looked for from the organization of new banks, generally small ones, below the minimum permitted under the old law.

The margin of profit is wider under the new than under the old law because the circulation tax is reduced from 1 to ½ per cent., and because the sinking fund required to reimburse the bank for a 12 per cent. premium, say, last October, on bonds to mature in eight years was a serious item, while the new 2 per cents will cost the banks about 6 per cent. premium, and a sinking fund charge to meet that in thirty years is, of course, very small.

Only two of the larger New York banks have their maximum circulation, while several of them had on deposit the minimum amount of bonds permitted under the old law, and two of these circulated no notes. This is a queer feature, but the Comptroller's report for 1898 shows that in Chicago eight of the largest banks deposited the minimum amount of bonds, and three of them did not circulate any notes. One of them has since put out $500,000, and is about to issue another $500,000 under the new law. But in 1898 nine Chicago banks, with $13,000,000 of capital, and surpluses of half as much more, had only $326,380 of notes outstanding. Seven Chicago banks are reported to be about to increase their circulation from less than $1,250,000 to $5,500,000. The banks have got to keep their notes in circulation or have them returned for redemption, so that the danger of inflation is not very great, though it might be accomplished through a rise of prices.

The Passing of the "All 'Round Inventor."

Nothing in the industrial development of the century now drawing to a close has been so distinctly and characteristically American as the work of the "all 'round inventor." He was the unique product of a young and virile civilization, growing and spreading in an almost empty continent under the strong hands of a new people, to which every nation of the old world contributed its best of brain and brawn. The race alloy formed in the crucible of a new state, under conditions favoring the merging and assimilation of whatever immigration might drop into it, naturally found its best expression in new types. The pleasantry which has become a classic, that the first business of a Yankee baby is to look his cradle over with a view to discovering a patentable improvement in its construction, merely caricatures a national tendency developed from a national necessity. The problems incident to a new civilization demanded instant solution, or progress must wait; and that the man of quick perceptions and natural ingenuity in the adaptation of means to ends should become an inventor of anything and everything having or promising utility was as natural as the sequence of effect and cause. Nowhere else have existed like conditions, but since these are rapidly passing, it is quite probable that the types to which they gave birth will pass with them. There are several reasons why this is true of the "all 'round inventor." Industry is becoming more and more specialized, and its several departments are less open to successful intrusion by men of ideas, unhampered by the limitations of experience, than they were under a less perfect system of industrial organization. Another reason, perhaps, is found in the increasing difficulty of successful invention, due to the fact that the average standards of manufacturing practice are so high, and so many ingenious men are constantly at work to raise them, that patentable inventions and improvements of real utility present grave difficulties. The late Grant Allen tells us, as a naturalist, that for centuries there has been a contest between the squirrels and the nuts, which has differentiated both. The nuts, to escape the attacks of the squirrels, have been thickening their shells, and the squirrels, to keep up with the nuts, have been lengthening and sharpening their teeth—with the result that the soft nuts have all been eaten, and the squirrels with dull teeth have all starved to death. Perhaps it is so with the inventor and his opportunities. The relatively easy problems have been solved, either by invention or by gradual progression in the application of experience; and the inventor who does not qualify by an intimate study of a subject, or who cannot bring to bear upon it something more than a quick intelligence and an ingenious facility in adapting means to ends, must either cease to

be an inventor, or waste his time in profitless effort, doing things which are not useful when done. Under these circumstances the span of human life is not long enough to permit a man to be an "all 'round inventor" with any chance of success. In his day, however, he was in the highest degree useful. If he did not reap large profits, it was, as the rule, because he had a natural inaptitude for the focalization of his energies on the problems of commercial development. Like the pioneer of civilization who finds irksome the restraints of the settlement which his work has made possible, and who pushes on where he may again stand alone, the representative inventor has always found the unsolved problem more fascinating than the rewards of monotonous application to productive industry, and has been happiest when the fruits of one invention gave him the means of perfecting another.

These reflections are suggested by a little memorial volume prepared by the sons of the late Hayward Augustus Harvey, which we have read with unusual interest. Gen. Thomas William Harvey and Hayward A. Harvey, father and son, were striking examples of the highest type of the American "all 'round inventor." Their joint lives of varied and useful activity, covering the period from 1832 to 1893, gave them opportunity for identification with the beginnings and development of many lines of manufacturing and for participation in the triumphs of others. We have no intention of writing anything like a biography of either of these remarkable men, but to note briefly the several lines of work to which they gave more or less fruitful attention cannot fail to be interesting and instructive as showing what opportunities our industrial beginnings gave to the talent of the restless inventor.

In 1832 Thomas W. Harvey, then a skillful young blacksmith, made an invention which was the basis of all machines since built for upsetting heads upon blanks, as in the manufacture of bolts, screws, nuts, nails, spikes, pins, &c. He next invented the gimlet pointed screw and machinery for making it, including that for cutting the thread automatically. The product of this machine displaced the screw in which each process of manufacture was performed separately by hand. His screw machines were built and first set up in Ramapo, N. Y., but were soon removed to Poughkeepsie, where, in association with Matthew Vassar and Frederick Goodsell, he established the first screw factory. Leaving Poughkeepsie, he came to New York to develop other inventions, and became interested in the iron ores of Putnam County, N. Y. He acquired valuable properties and undertook to establish extensive mining operations along the line of the Harlem Railroad, organizing the Harvey Steel & Iron Company with a capital of $1,000,000. He devoted much time to electrical experiments, which would have been extremely valuable if they had not been premature by nearly a quarter of a century. Before 1845 he had a machine shop run by an electro-magnetic engine, actuated by a current from cell batteries. He was a pioneer in electro-metallurgy, first depositing silver on copper by what is now the usual method of electro-plating. He was also probably first to experiment in the magnetic concentration of iron ore, using an endless belt carrying magnets. The last few years of his life were in part devoted to experiments with a method of making steel direct from iron ore. He also endeavored to produce on sheet iron the surface peculiar to the Russia iron sheets, the making of which was then believed to be a great secret, jealously guarded in the fastnesses of the Ural Mountains. So carefully were these operations safeguarded that the Government officers raided the shop under the impression that it must be run for the production of counterfeit coins. He made the first solid head pin, built the first machine for sticking pins in papers, was interested in the manufacture of haircloth, built and patented new and useful weaving machinery, and made a number of inventions relating to railroad appliances. Probably his most important invention was the "rotary toggle joint press." The officials of the Patent Office deemed it not inconsistent with their duties and dignity to compliment General Harvey on this machine as, in their judgment, "more important than any discovery that has been produced during the last 100 years." Such compliments are not officially paid to inventors nowadays. If one gets an "allowance," after a more or less perfunctory effort to find a reason for refusing it, he should be, and usually is, well satisfied.

Hayward A. Harvey inherited his father's talent, and was nearly as versatile, but somewhat more practical. He began business as a draftsman in the office of the New York Screw Company, and had a thorough training at the drawing board. His first invention was the wire staple used in window blind manufacture; his next a hay cutter, for which he was awarded the silver medal of the American Institute in 1847. After the death of his father, in 1850, his talent as an inventor had full sway. He soon focalized his attention on screws and screw machinery, and in 1864 produced a series of brilliant inventions which revolutionized this important industry. In 1865 he established the Continental Screw Company, which had the first plant of automatic screw machinery. It was subsequently purchased by and consolidated with the American Screw Company. Mr. Harvey then turned his attention to bolts, and produced the "peripheral grip bolt," having a varying pitch of thread, operating to lock the nut. In 1880 he produced the revolutionary invention of the rolled screw, and complete machinery for making it. This changed the method of screw making, both in this country and in Europe. The patents for this device and its machinery were secured by the American Screw Company for the United States, and by Nettlefolds for Europe. About this time Mr. Harvey made some novel and profitable inventions in spring washers for railroad work, which have been the basis of important industries.

While conducting experiments with bolts and nuts Mr. Harvey conceived the idea which developed into what is now known the world over as "Harveying" or "Harveyizing," and as applied to armor plates has had so important an influence upon naval architecture. His completed inventions are represented by 78 United States' patents, covering pretty much everything from a blind staple to steel rails and armor plate. Comparing the son's work with that of the father, we note the influence of changed conditions tending to concentration of thought and effort. Should the influence of heredity show itself in another generation, it will probably find a very different expression, for reasons already stated.

H. A. Harvey's methods as an inventor were those of all geniuses in the field of mechanics. If he sought a result which his keen perceptions showed him to be desirable, he sedulously avoided advising himself as to what had been done by others in the same line. If his problem was a machine, he believed he could do his best work in ignorance of the "state of the art." If dealing with a problem in metallurgy, he preferred not to be told what were the accepted scientific theories relating to what he was doing. Experience had taught him that he worked more freely and confidently if untrammeled by any knowledge of what others had tried to do. As to

"scientific theories," he had no use for them. If he reached a result, it was immaterial whether it fitted the preconceived notions of the chemists or not. The time to explain a thing was when it was an accomplished fact; if it then contradicted theory, so much the worse for theory.

The Harveys, father and son, were types of the "all 'round inventor" class in its best estate. Neither could have done what he did had he lived a generation later, but none the less is it true that on the work of such men the foundations of our industrial development were builded. The twentieth century will have no place for such versatility of genius; the nineteenth century needed the "all 'round inventor," as it needed pathfinders and pioneers to lead the westward sweep of population across a wilderness. Every year of progress toward higher and more uniform standards in the useful arts and applied sciences tends to make versatility synonymous with superficiality, and to create conditions under which the "all 'round inventor" will find himself as impractical as the maker of unmarketable prophecies.

CORRESPONDENCE.

Laboratory Notes.

To the Editor: It is with some little pleasure that I read Wash Bottle's kind words in regard to Laboratory Notes, but I do take exception to his criticism inasmuch as he apparently has not quite understood the procedure as outlined, and methinks after the following explanation, his criticism will be merged into one pæan of praise.

I will readily grant that filter paper contains some moisture, and perhaps some "other volatile matter," else we would not dry it. The filters after being dried are transferred as rapidly as possible, with the aid of a pair of pincers, from the oven to a pair of tightly fitting watch glasses held in place by a clip. This is weighed without waiting to cool, and after the filtration and washing of the precipitate the filter is pressed flat on a blotter to remove the excess of water, and the corners so folded that it can easily lay between the watch glasses, and after drying the allotted time, it is again rapidly transferred to the watch glasses with the aid of a pair of pincers, and immediately weighed.

Certainly this procedure obviates all possibility of the absorption of moisture; the watch glasses with their contents suffer no appreciable change in weight after even a half hour's interval. The use of counterpoised filters, or still more preferably, a gooch crucible with paper disk and cap and lid are perfectly satisfactory, when one or maybe two determinations are done at one time; but when the number is increased to 10 or 20 or even 30 the preparation of the counterpoised filters becomes burdensome; and aside from all titration methods, it is either weighing as described or flying weights of the uncovered paper, duplicated both before and after the filtration.

J. M. C.

How Another Consumer Regards the Market.

To the Editor: The letter to you from "Consumer," which was printed in *The Iron Age*, March 15, seems to me a carefully prepared "bear" letter, not at all in sympathy with existing circumstances and the rise in iron. His claim that the "nervousness of consumers" was the cause for "the rapid rise in iron last fall" might be accepted as a fact by the casual reader, but history does not bear out his claim. It took a whole year for the iron market to complete its rise and, I believe, consumers never before put up such a stubborn fight against the rising market as they did throughout the whole of last year, nor were the furnacemen ever before so much inclined to keep the market from going unreasonably high.

Why "Consumer" should suggest that *The Iron Age* gives one sided information I cannot conceive, unless it was, as I have said, a desire to "bear" the market, for your paper is always impartial and conservative.

"Consumer" does not specify just how many are able to get prompt deliveries now, but I for one, sad to say, have found it almost impossible to secure some pig iron which was bought at the hight of the market, and I am convinced that there are many others in the same straits. The number of consumers overstocked with iron is small, while the number of furnaces overstocked with orders is legion.

I am not especially pleased with high priced iron, yet it would seem preferable to have the price of raw material stay where it is rather than again go through the trials which a fluctuating market brings to the foundryman.

ANOTHER CONSUMER.

NEW YORK, March 16, 1900.

OBITUARY.

SAMUEL C. LEE.

Samuel Cooper Lee, for 30 years manager of the Champion Mowing Machine Company in Baltimore, Md., died on March 12, at his home in that city, aged 72 years.

BENJAMIN C. REYNOLDS.

Benjamin C. Reynolds, proprietor and manager for many years of the Reynolds Foundry, near Rising Sun, Md., died on March 13. at his home, near Oxford, Md., aged 75 years.

HENRY M. PROWITT.

Henry Mackarness Prowitt, for many years president of the Norwalk Lock Company, died on March 11, at his home in South Norwalk, Conn., from heart disease, aged 86 years.

RUFUS HART.

Rufus Hart, senior member of the firm of Hart & Osgood, iron founders, of Boston, Mass., died suddenly on March 14, aged 69 years.

HENRY HOBART.

Henry Hobart, a former prominent tack manufacturer, died on March 12 at East Bridgewater, Mass., at the age of 76 years. He was born at Foxboro, Mass., and when a lad learned the tack business with the firm of B. Hobart & Son, at East Bridgewater. When the firm of Dunbar & Hobart were formed in 1857 Mr. Hobart became the junior partner, and afterward the firm name was changed to Dunbar, Hobart & Whidden. The plant was enlarged, its manufactured products were shipped to all parts of the world. On the death of Mr. Whidden the firm's name was changed to Dunbar, Hobart & Co. The business was purchased by the Atlas Tack Corporation and continued up to the time of that concern's failure.

JOHN G. MURPHY.

John G. Murphy, a well-known mining engineer, died in Bellevue Hospital, New York City, on March 15, from a stroke of apoplexy. He was graduated from the School of Mines in Columbia University in 1877, and in the early eighties became superintendent of mines near Caracas, Venezuela. In 1882 he was appointed assayer for the State of Wyoming, and held that place for some time. Since then he had been engaged in mining enterprises in the West and South America. He was perfecting an invention to separate the gold from the ore, which was known as the "Murphy gold process."

CHARLES R. BROWN.

Charles Rogers Brown, manager of the railway department of the Michigan Malleable Iron Works, Detroit, Mich., died at Harper Hospital, Detroit, on March 11, as the result of an operation for the relief of a stomach trouble. Mr. Brown was born in Boston, Mass., 42 years ago. He was for a number of years engaged in the promotion and construction of railroad lines in Tennessee and other Southern States, and prior to going to Detroit was connected with the sales department of the Illinois Steel Company.

PROF. SAMSON JORDAN.

Late European advices record the death of Prof. Samson Jordan of the Ecole des Mines of Paris, France, one of the highest European authorities on metallurgy. Professor Jordan had filled the chair of metallurgy at the Ecole des Mines for nearly 30 years. He was the author of a number of valuable papers on the iron and steel industries of France, and his "Album of Metallurgy," published in 1878, was one of the best as it was one of the earliest books on the subject.

WALTER NISHWITZ.

Walter Nishwitz, proprietor of large agricultural implement works at Millington, N. J., died of pneumonia on March 17, at his home at Basking Ridge, N. J., aged 70 years. Twenty-five years ago he invented a mowing machine and sold the patent to the Walter A. Wood Company. Shortly after this he patented the Acme harrow and built a factory at Millington, N. J. He built up an extensive trade which extended over the United States, Europe and Australia.

HORATIO TREXLER.

Horatio Trexler, one of the oldest ironmasters in Eastern Pennsylvania, died on March 19 in Reading, Pa., aged 87 years. He conducted for many years the Mary

Ann charcoal furnace and two forges. When these enterprises were relinquished, Mr. Trexler settled in Reading and identified himself with several interests in that city, including the Reading Iron Company, and the National Union Bank, of which he was the president for a number of years.

GEORGE YULE.

George Yule, an inventor and manufacturer of fine machinery, died on March 18 in Newark, N. J., from diabetes, at the age of 48 years.

JAMES GRAHAM.

James Graham, head of the firm of James Graham & Co., brass founders, died on March 19, at his home in West Haven, Conn., from pneumonia, aged 65 years. Mr. Graham served two years as a State Senator and filled other public offices in Connecticut.

STEPHEN P. M. TASKER.

Stephen P. M. Tasker, one of the best known mechanical engineers of Philadelphia, died on March 19 at his residence in that city in his sixty-sixth year. He was a son of Thomas T. Tasker, a member of the well-known firm of Morris & Tasker, iron founders. He entered the pattern shop and drafting department of his father's works, and at the age of 21 years became a member of the firm. The father died a few years ago, aged 93 years, and the son retained his connection with the firm until the works, which had been removed to New Castle, Del., were sold in 1899. The plant at New Castle was constructed under the supervision of Mr. Tasker, who was regarded as one of the ablest engineers in the United States. Several important mechanical inventions were perfected by him and were patented in the United States and Europe. Mr. Tasker was known for his liberality and private generosity throughout his life. During the Civil War the families of his workmen who had enlisted were supported by him, and it was his custom to help defray the expense of funerals of men in his employ. One year ago he entered the cold storage business in the firm of Tasker & Julius, which had just completed a large plant in Philadelphia. Mr. Tasker was never married.

JAMES DICKEY.

James Dickey, proprietor of a foundry at Reinersburg, Clarion County, Pa., died March 18, aged 72 years. He was one of the pioneers of the Pennsylvania oil and natural gas industries, and invented the Dickey torpedo.

HANSEL J. GREEN.

Hansel J. Green died at his home in Attica, Ind., on the 11th inst. Mr. Green was born in Gloucestershire, England, in 1829, and with his parents came to America in 1842, locating in Portage County, Ohio. He first learned the tinners' trade in Canfield, Ohio, but in 1852 settled in Attica, Ind., and purchased a small store. A year later he purchased another building and in 1858 moved again. In 1866 he built the block now occupied by his son, La Monte M. Green, and put in it what is said to have been the finest stock of hardware in Western Indiana at that time. Mr. Green retired from the hardware business in 1885, and was succeeded by his son. He was also president of the City Milling Company, and prominently identified with the Farmers' and Merchants' Bank.

GEORGE B. SENNETT.

George B. Sennett died at Youngstown, Ohio, on the 18th inst. The deceased was president of the George B. Sennett Company, and for the past 35 years had been identified with the iron business, in which his father was one of the pioneers of Western Pennsylvania. Mr. Sennett moved his iron works from Meadville, Pa., to Youngstown about three years ago. Aside from his influential qualities and prominence in the business world, he was a man of sterling qualities and great personal worth. Mr. Sennett was born in Sinclairsville, N. Y., July 28, 1840, but lived most of his life in Pennsylvania. When about 20 years of age he traveled in Europe, spending some years in Paris, Berlin, Leipzig, London and other large centers, devoting himself to the study of languages and literature. Shortly after his return to this country in 1865 he engaged in the building of oil machinery in Meadville. It was as an ornithologist that Mr. Sennett was best known, he having in the 70's equipped and sent several expeditions into Texas, some of which he headed personally, for the exploration of the country, many birds of which were then unknown. Mr. Sennett some years ago placed his scientific collection, which is one of great value as it contains several types discovered and named by him, in the American Museum of Natural History in New York for the use of students in natural history. He was a member of the American Ornithologists' Union, Metropolitan Museum of Art, Museum of Natural History and Manhattan Club, as well as of foreign scientific societies, and was a prolific writer on ornithological subjects. In late years he devoted much time to a work on the birds of Texas, for which he had drawings of the types which he discovered drawn by Ernest Seton Thompson. The book was all but ready for the publisher, and will undoubtedly be arranged by one of his many scientific friends for the press, to stand as a lasting monument to his labors in natural history.

The Machinists' Strike.

The conference at Chicago, held on the 17th inst. by representatives of the manufacturers and the workmen, failed to accomplish anything. It was a most important gathering. The Chicago manufacturers had called on the National Metal Trades Association for their co-operation in endeavoring to arrive at a settlement, and the Administrative Council of that body were represented as follows:

President, Geo. D. Selden, Erie City Iron Works, Erie, Pa.; vice-president, F. H. Stillman, Watson-Stillman Company, New York City; treasurer, H. N. Covell, Lidgerwood Mfg. Company, Brooklyn, N. Y.; secretary, A. J. Caldwell, Henry R. Worthington, New York City; M. H. Barker, American Tool Machine Company, Boston; Geo. A. Watts, Watts-Campbell Company, Newark, N. J.; H. M. Leland, Leland & Faulconer Mfg. Company, Detroit, Mich.; J. W. Gardner, Gardner Governor Company, Quincy, Ill.; Chas. Allis, E. P. Allis Company, Milwaukee, Wis.; Ferd. Schwedtmann, Wagner Electric Mfg. Company, St. Louis; F. W. Pilsbry, Fred. W. Wolf Company, Chicago.

President James O'Connell represented the International Association of Machinists, and these members of the Board of Trustees were on hand: Hugh Doran of Chicago, Stuart Reed of Toledo, A. W. Holmes of Buffalo, P. J. Conlan of Sioux City, Iowa, and J. J. Connolly of Boston.

The object of the meeting was to arrange for a national arbitration of any differences that may exist between the members of the two organizations, but the meeting failed to bring about any agreement, owing to the refusal of the Executive Committee of the International Association of Machinists representing all the local and grand lodges to sign. The members of the Administrative Council of the National Metal Trades Association, having been informed by President O'Connell that his Executive Committee cannot call off the strike, although they want to do so, because they cannot control the local unions in Chicago who refuse to obey his orders, it seems impossible to bring about a national arbitration, for the reason that if President O'Connell and his associates, representing all the machinists' unions in the United States and Canada, cannot control their members at this time, no guarantee would seem possible for such control in the future. The two bodies adjourned without any agreement for future meetings and all negotiations are off.

The agreement for arbitration submitted to the machinists by the manufacturers, and which was rejected by the former, is as follows:

"*Whereas*, The National Metal Trades Association, party of the first part hereto, is a voluntary association of employers, persons corporate and individual and firms, members thereof, and

"*Whereas*, The said National Metal Trades Association claims to represent, and does in fact represent, all such persons, its members with power and authority to act for such members, and

"*Whereas*, The International Association of Machinists, parties of the second part hereto, is a voluntary association of employees, members thereof, claiming to represent, and in fact, representing such members, both the grand lodge thereof, the district lodges thereof, and the local lodges thereof throughout the United States and Canada, and

"*Whereas*, There now exists, and may hereafter exist or occur, a condition of industrial disturbances and cessation of contract relations between employer and employees, commonly called lockout or strike, in the United States and Canada, and

"*Whereas*, The undersigned, George D. Selden, F. H. Stillman, M. H. Barker, George A. Watts, H. M. Leland, J. W. Gardner, Charles Allis, Fred. Schwedtmann, N. H. Covell, Fred. F. Stockwell, Nathan B. Payne, J. A. Jeffry, F. W. Pilsbry, H. F. Crandall and N. O. Nelson, are a lawfully appointed committee to represent and bind by these presents hereto, the said National Metal Trades Association, and all members thereof, and

"*Whereas*, The undersigned are a lawfully appointed committee with authority to represent and bind by these presents hereto all members of the International Association of Machinists, now, therefore,

"This agreement made this seventeenth day of March, 1900, between said committee acting for and

representing said National Metal Trades Association, and said committee acting for and representing said International Association of Machinists,

"*Witnesseth*, The parties hereto, believing in the principle of national arbitration in settling contentions that arise between employers and their employees instead of resorting to lockouts and strikes, do hereby recommend for ratification by the two organizations, known as the National Metal Trades Association and the International Association of Machinists, the following joint agreement:

"*Whereas*, The past experience of the National Metal Trades Association and the International Association of Machinists justifies the opinion that mutual agreements conducing to greater harmony in their relations as employers and employees will be of advantage; therefore

"*Resolved*, That this Committee of Conference indorse the principle of national arbitration in the settlement of trade disputes, and recommend the same for adoption by the members of the National Metal Trades Association and the International Association of Machinists. Be it further

"*Resolved*, That in all pending disputes and disputes hereafter to arise between members of the respective organizations—*i. e.*, an employer and his employee or employees, every reasonable effort shall be made by the said parties to effect a satisfactory adjustment of the difficulty; failing in which either party shall have the right to ask its reference to a Committee of Arbitration, which shall consist of the presidents of the National Metal Trades Association and of the International Association of Machinists, or their representatives; and two other representatives from each association appointed by the respective presidents. The finding of this Committee of Arbitration by a majority vote shall be considered final as regards the case at issue, and as marking a precedent for the future action of the respective organizations. Pending adjudication by the Committee of Arbitration there shall be no cessation of work at the instance of either party to the dispute. The Committee of Arbitration shall meet within two weeks after the reference of the dispute to them.

"This agreement shall take effect from the date of its ratification by the said two associations, notice of which ratification shall be promptly given to each other by the respective secretaries.

"And it is further agreed that during the time necessary for the ratification hereof as above provided, and the time needed to consider and act upon the above proposed joint agreement, there shall be no lockout or strikes in either association; and all lockouts or strikes that now exist and are participated in by the members of either of the parties to this agreement, shall be immediately and officially called off wherever they may exist."

After the conference had ended President O'Connell of the union declared that strikes would be called immediately in all parts of the United States and Canada, and that such strikes would involve 100,000 men, and cause to be shut down for an indefinite period plants having an aggregate capital of millions of dollars. The first of these strikes, it is asserted, will be called in Cleveland, Ohio.

In view of the advisability of concerted action among employers of machinists, local organizations, comprised of the manufacturers in the various districts, are being formed in all large industrial centers. Such an association, whose territory is in the vicinity of Greater New York and New Jersey, has just completed details of organization. It has been styled the New York and New Jersey Machinery Manufacturers' Association. Many of the largest manufacturers, whose plants are within the field of operations of the association, have already identified themselves with the movement. The officers are: President, A. B. See of the A. B. See Mfg. Company, Brooklyn, N. Y.; vice-president, J. S. Mundy of Newark, N. J.; treasurer, G. K. Garvin of the Garvin Machine Company, New York; acting secretary, Charles E. Vail.

All hope of a settlement has not yet been abandoned, despite the attitude taken by the representatives of the machinists. Eastern manufacturers, particularly, are quite confident that their employees will not act hastily.

Information Wanted.—We are asked for catalogues of concerns making a specialty of jail cells and jail buildings. The catalogues should be sent to our St. Louis office, 1205 Chemical Building.

We have an inquiry for the name and address of manufacturers of machinery, &c., for the manufacture of powder and dynamite.

At Pittsburgh railroad officials have agreed on an advance of 25 cents a ton in carloads from the Pittsburgh district to Buffalo and other points north and east, to become effective April 1. The new car rate from the Pittsburgh district to Oil City, Titusville, Corry, Pa., and Jamestown, Olean, and Buffalo, N. Y., will be $1.15 net ton; to International Bridge, $1.20; to Niagara Falls, Suspension Bridge, Rochester and Hornellsville, N. Y., $1.30.

The Sandusky Automobile & Gas Engine Company.

The Sandusky Automobile & Gas Engine Company of Sandusky, Ohio, were organized last February, and are now in good running order. There are two separate departments, one for the manufacture of horseless carriages; the other for the manufacture of gasoline engines. F. M. Underwood, favorably known all over the country as the inventor of the Underwood gasoline engines and a pioneer in this business, has charge of the latter department, and will give it his undivided attention. He enjoys the distinction of being the first in the field for utilizing his motors for well drilling and stake driving for fishing purposes in Lake Erie and elsewhere. Mr. Underwood has recently introduced new features and principles of intrinsic value in the construction of two-cycle engines, which he claims absolutely prevent any firing in the base. These gasoline engines are specially adapted for automobiles, marine and electric light purposes. The company also make all kinds and styles of stationary and portable engines of the four-cycle type, and claim for all of them greatest simplicity, power and durability and light weight. The new concern are in first class condition for the prompt execution of all orders for gasoline motors from 1 to 50 horsepower, all possessing new and important improvements, which they allege are not to be found in other engines. The automobiles will be equipped with a gear of entirely new construction the details of which will not be disclosed for the present. The gas engine catalogues can be had upon application, but the automobile catalogue is not yet ready for distribution. Carl Raab, the president of the new concern, has been for 17 years assistant to the president of R. H. Wolff & Co., Limited, of New York, and is therefore familiar with the operations of a large factory.

Large Order for Tubes.—The United States Government has just placed an order with the National Tube Company of Pittsburgh, through their New York office, for 70,000 seamless cold drawn tubes. These will be made at the Christy Park plant of the National Tube Company, at Christy Park, near McKeesport, Pa.

An opinion was handed down on Monday in the United States Supreme Court sustaining the validity of the Texas anti-trust law. The ruling was given in the case of the Waters-Pierce Oil Company, who claimed the right to do business in the State of Texas contrary to the provisions of the State anti-trust laws of 1889 and 1895. It was charged that the company was a member of the Standard Oil Trust, and the Supreme Court affirmed the decisions of the lower courts to the effect that the State laws imposed a condition which the oil company had accepted, and hence the latter were without ground of complaint.

The American-Canadian Transportation Company, of whom W. J. Conner of Buffalo is the head, have awarded the contract to build the company's great elevator and warehouse in Montreal to James Stewart & Co., of St. Louis, Mo. The plans were drawn by Barnard & Record of Minneapolis, who will act as supervising architects as well. The cost of the elevator-warehouse will be $1,000,000 and it will be largely constructed of steel. It will be as nearly fire proof as it is possible to make it, and the storage capacity of grain will be 3,000,000 bushels. It is said that it will be almost a duplicate of the Fitchburg Railroad Company's elevator in Boston, Mass. The syndicate will also build extensive docks in Montreal and also an elevator at Windmill Point, on Lake Erie. A fleet of vessels is now being built in Toronto and Collingwood, Ont., for the syndicate.

At Pittsburgh, on the 19th inst., papers were filed in a bill of equity by the Wheeling Corrugating Company of West Virginia, and the Scully Iron & Steel Company of Illinois, who are acting jointly, against the Old Meadow Rolling Mill Company of Scottdale, Pa. Some time ago the plaintiffs in this case began individually suits in the United States Circuit Court for claims of indebtedness amounting to $25,000 by the Wheeling Corrugating Company, and $21,787 by the Scully Iron & Steel Company. These suits are now pending and will come up during the May term of the court. In the meantime the plaintiffs allege that the Old Meadow Rolling Mill Company, who own a large and valuable plant

in Scottdale, Pa., together with much valuable land, have been conspiring to defeat the ends of justice by selling out their plant to a new company that are to be organized under the laws of New Jersey. As a new and entirely different corporation, the plaintiffs allege that it would place the assets of the defendant company out of the reach of the plaintiffs in securing value for their claims against the Old Meadow Rolling Mill Company.

Canadian News.

The Orford Copper Company's Process.

In this correspondence it was mentioned a week or two ago that application had been made to the Dominion Parliament for the renewal of a certain patent by the Orford Copper Company, the procees in question being one for the refining of nickel copper matte. Opposition to that application has arisen from an unexpected quarter. Hon. E. J. Davis, Commissioner of Crown Lands in the Ontario Government, introduced into the Ontario Legislature on Thursday a resolution protesting against the renewal by the Dominion Parliament of the letters patent granted to the Orford Copper Company for refining matte of the nickel and copper ores of Sudbury district. The text of the resolution is as follows:

"That this House declares its opinion that the interests of the nickel and copper industries of this Province demand that letters patent granted by the Government of the Dominion of Canada to the Orford Copper Company of New York in 1893, and now in use by that company in the State of New Jersey for refining matte of the nickel and copper ores of the Sudbury district of the Province of Ontario, should not be revived or renewed, as is proposed by the bill now before the Parliament of Canada providing for the revival of said letters patent and for the renewing and extension of the powers conferred thereby, but that the provisions of the patent laws of the Dominion shall be allowed to take effect, and the said process heretofore covered by the said patent rendered available to all persons desirous of using the same for the refining of nickel or copper ores, or the mattes thereof, in the Dominion of Canada—the said process, though patented in Canada, never having been operated therein; and no attempt having been made by the owners of the patent to apply it within the limits of Canada to the said ores or mattes, and the said patent having by operation of the patent laws of Canada been null and void for non-use for a period of more than four years. And this House further approves of a petition to the Dominion Parliament being presented under the hand of the Speaker of this House, respectfully protesting against the said legislation."

As to ulterior motives that may be behind this action, suggestions are made by the Toronto *World*. It implies that the unusual course of the Ontario Legislature being moved by a member of the Provincial Government to direct the Parliament of the Dominion as to its duty in reference to certain private legislation before it is in the interests of the projected Hamilton Refining Works. The *World* suspects that another member of the Ontario Government, Hon. J. M. Gibson, is the prompter of the resolution. Mr. Gibson is a Hamilton man, interested in the Cataract Power Company, who will probably supply the electricity to the Hoeffner Company's Works, in which the *World* alleges Mr. Gibson is also interested.

But the opposition of the Ontario Government is not the only influence thrown in the way of the Orford Company's application for renewal. When the second reading of the bill to confer on the Commissioner of Patents the powers required to renew the Orford Company's patent was moved by Mr. McInnes, A. T. Wood, M.P. for Hamilton, objected. He said the purpose of the bill was to revive a patent which had lapsed through lack of use. There had been formed, he said, in Hamilton a company for the refining of nickel; and, although there was no reason to suppose that the process which that company proposed to use would prove a failure, yet it was important that the company should have some process to fall back upon in case of necessity. To revive the patent of the Orford Copper Company would, he said, be to shut the Hamilton company out of an alternate process. He, therefore, moved the six months' hoist. At this point the debate adjourned.

The Wellman-Siever Company of Cleveland, who are laying out the steel plant of the Hamilton Steel & Iron Company, have secured the contract to design the works of the Nickel Steel Company, also at Hamilton.

Nova Scotia Iron & Steel Company.

Upward of two years ago an act was passed by the Nova Scotia Legislature incorporating the Nova Scotia Iron & Steel Company, with a capital of $1,000,000. The applicants for incorporation were members of the Nova Scotia Steel Company and others associated with them. It was generally thought that the newly formed company would establish iron and steel works at Sydney, Louisbourg, or some other shipping point in Cape Breton; and that they would take over the works of the Nova Scotia Steel Company. It was also regarded as possible that leading interests in the Dominion Coal Company would join the new Nova Scotia Iron & Steel Company. But eventually another and larger corporation, the Dominion Iron & Steel Company, were evolved from the Dominion Coal Company. The Dominion Iron & Steel Company did not take in the Nova Scotia Steel Company's Works at Trenton and Ferrona, but they purchased part of the Newfoundland ore deposits owned by the Nova Scotia Steel Company. But still the powers granted by the Legislature to the Nova Scotia Iron & Steel Company are not to go unused. A bill has received its second reading in the Nova Scotia Legislative Council, the object of which bill is to amend the act incorporating the Nova Scotia Iron & Steel Company, one of the amendments being to increase the capital stock from their present limit of $1,000,000 to one of $20,000,000. Hon. Mr. Armstrong, who introduced the measure, said that the works at Trenton and Ferrona would be continued, and that large coal and iron developments would be carried out in Cape Breton. It was an open secret, he said, that the company had purchased the works of the old Sydney mines belonging to the General Mining Association. It was significant, he added, that when this bill went through the Legislature, and when the Nova Scotia Iron & Steel Company were about to carry to a conclusion their intentions, the old General Mining Association, which had done business in the Province for three-quarters of a century, would go out of existence. Its old Sydney colliery and the large important submarine coal areas contiguous will be worked by the Nova Scotia Iron & Steel Company. The areas at Point Aconi and the Island of Boularderie are to be opened up. These mines belong to the northern limit of the greatest coal fields in the Province.

Copper Works in Nova Scotia.

The Town Council of Pictou, N. S., has before the Legislature a bill to authorize it to borrow $20,000 to acquire a site for the Copper Crown Mining Company. That company have already expended $100,000, and propose to continue erecting additional furnaces until they have a capacity of 500 tons per day. Mines are being worked in connection with the company at Wentworth and Wallace River, Cumberland, New Annand, Cotchester and Lansdowne.

H. B. Meech, a Boston man, has been looking over North Sydney, N. S., in quest of a suitable site for a large copper smelting works, which are to cost about $150,000.

Trade Items.

Mr. Moxham, the manager of the Dominion Iron & Steel Company, has arrived, and is taking charge of the works being constructed at Sydney. The machine shop and foundry are so far advanced that the company are able to make their own castings. The foundations are ready for two new blast furnaces.

D. O'Connor of Sudbury has sold a small block of nickel lands on the shores of Lake Temagami to a company of New York men, who, it is said, intend to develop the property at once.

The Berlin Iron Bridge Company of East Berlin, Conn., who had the contract for the buildings of the Ottawa Carbide Company, have completed their part of the work. On the roof bins and the floors of the grinding department 468 tons of steel were used.

The John McDougall Caledonian Iron Company have been incorporated with a capital of $500,000. The following being shareholders: Robert Cowan, E. McDougall, F. C. Henshaw, A. H. McDougall, J. E. McDougall and L. D. McDougall.

Mayor Teetzel of Hamilton has returned from Philadelphia, where he has been communicating with persons proposing to establish large electrical supply works in Hamilton.

The Dominion Fence Company, with a capital of $750,000, have been incorporated. The head office will be in Toronto. Iron and wire fences, metallic roofing and siding, will be manufactured.

Tenders are called for the construction in Hamilton of the new factory of the National Cycle & Automobile Company. The buildings are to cost about $35,000, and new machinery has been purchased to the value of $350,000. C. A. C. J.

In the courts at Pittsburgh last week an order was signed by the court granting an extension of 15 days to the defense in which to file their answer to the suit of H. C. Frick and other minority stockholders in the Frick Coke Company, against the Carnegie Steel Company, to annul a contract for coke running over five years at $1.35 a ton.

MANUFACTURING.

Iron and Steel.

We are advised that the statement that Wilkofsky Brothers, dealers in scrap iron, steel and metals, at Youngstown, Ohio, had bought a rolling mill in Akron, Ohio, and would put it in operation is untrue.

The New Castle Works of the National Steel Company, at New Castle, Pa., which have been idle for several months, started up last week. The output of the plant will be billets and sheet bars.

The Stephenson Iron & Steel Company, Pittsburgh, with a capital of $50,000, was chartered on Monday, March 19. The directors are Robert S. Stephenson, F. M. Love, Jno. C. Bash, G. K. Wright and A. W. Cook, all of Pittsburgh.

The American Steel & Wire Company have placed an order with the Pressed Steel Car Company for 300 steel cars with low sides, which will be used for transporting billets.

L. E. Block of the Inland Steel Company, Chicago, has been in Tonawanda and Buffalo arranging for the construction of the company's branch plant at Tonawanda. The cost of the new plant will be about $300,000.

The Carnegie Steel Company, Limited, will erect a large residence at Duquesne, to be occupied by Jos. E. Schwab, superintendent of the Duquesne steel works and blast furnaces.

The American Steel & Wire Company, at Pittsburgh, have just closed the purchase of 73 more acres of land on Neville Island for a total consideration of $239,389. This gives the company a very large acreage on Neville Island, on which will be erected blast furnaces, steel works, rod and wire mills. Already work has progressed considerably on the erection of a 600-ton blast furnace. The company have also asked the Councils of Braddock, Pa., to vacate certain streets in Braddock in order that certain additions to their plant at that place can be made.

The Struthers Iron & Steel Company, Struthers, Ohio, are shipping to Cuba four large carloads of galvanized corrugated sheets for use on new buildings there. The export inquiry is quite brisk. They have made shipments of galvanized sheets to Mexico.

The bi-monthly wage adjustment for the sheet mills met in Pittsburgh last week. Sheet mill workers did not obtain any advance in wages for March and April.

The two-mill plant formerly operated by the Ohio River Sheet & Tin Plate Company, at Remington, Pa., is being dismantled and the mills are being taken to the Irondale mills of the American Tin Plate Company, at Irondale, Ohio.

The Sharon Tin Plate Company, Sharon, Pa., have placed a contract for the building of a ten-mill tin plate plant at Sharon, Pa.

The Spargo Wire Works Company of Rome, N. Y., have been incorporated, with a capital of $25,000. The directors are James A. Spargo of Rome and R. T. Garrison of New York City.

We are officially advised that some time since the Pennsylvania Railroad Company placed an order with the Carnegie Steel Company for a small lot of nickel steel rails. However, these rails have been in track for such a short time that nothing can be said as yet with reference to their merits. It is not the intention of the Pennsylvania Railroad to place any more of these rails in track until they have further tested the small lot now in use.

The United States Nail & Wire Company, with offices at 919 Liberty avenue, Pittsburgh, Pa., are pushing work on their new plant now being built at Shousetown, Pa. The equipment includes a 14-inch mill, made by the Lewis Foundry & Machine Company of the South Side, Pittsburgh, to roll rods, the intention being to melt old steel rails. J. H. Denoon is president of the concern.

Machinery.

At Pittsburgh the application of Leechburg Foundry & Machine Company for dissolution has been granted.

It is reported that an automobile factory is to be established at Warren, Ohio, by local capitalists.

The new plant of the Mesta Machine Company, at West Homestead, Pa., was put in full operation last week, the last of the departments, the finishing shop, being started.

The Braddock Tool Company have been organized at Braddock, Pa., with a capital stock of $25,000. A small plant is to be erected in Braddock for the manufacture of tools.

A charter was granted under the laws of Pennsylvania March 14 to the Pittsburgh Feed Water Heater Company, Pittsburgh, Pa., for the manufacture of feed water heaters, &c. James Bonar is president, J. E. Schlieper treasurer and general manager, and Joseph Cawley secretary. The sales department will be under control of James Bonar & Co., Pittsburgh, Pa., as heretofore. The company will manufacture both the Pittsburgh feed water heaters and purifiers, and also the Pittsburgh tubular feed water heaters. These heaters have been in use for the last six years and are being adopted by some of the leading steam users, the Carnegie Steel Company, Limited, alone having installed over 50,000 horse-power and there being 300,000 horse-power in use throughout the United States. It is the intention of the company to push the sale of these heaters to greater extent than in the past, and the company are desirous of making connections with different concerns throughout the United States to take hold of their product for their various sections.

The E. W. Bliss Company, the well-known press and die makers of Brooklyn, N. Y., are now shipping to France over 100 cases of their machines for exhibition purposes, both at Champ de Mars and at Vincennes, during the coming Paris Exposition. The total weight of these machines will be in the neighborhood of 200,000 pounds. Among the interesting machines which they intend to exhibit will be found an automatic can body forming and lock seaming machine, a new style toggle drawing press, an automatic notching machine, spinning lathes, single action presses, double action presses, drop hammers, double crank presses, heavy punching presses, screw machines for sheet metal screws, power squeezers, shears and many other machines of particular interest to those who make articles from sheet metal. The Bliss Company's exhibit will also contain a large number of machines specially adapted for the manufacture of armature disks and sections.

The Woodruff & Edwards Company have succeeded the C. H. Woodruff Company, iron founders and machinists, at Elgin, Ill. A. D. Edwards, who was formerly connected with the Illinois Iron & Bolt Company at Carpentersville, Ill., is now secretary and treasurer of the new company. They are building an addition to their foundry, which will give them about 50 per cent. larger output. The company are manufacturers of the Elgin National coffee mills, feed mills and corn shellers, and are also builders of architectural iron work and special machinery.

The Chicago Pneumatic Tool Company have offered all their customers who have purchased the Boyer piston air drills to equip these drills with the improvements that have been made since their purchase. These improvements consist of lately invented oiling attachments and other devices which greatly increase the life of the drill.

The Franklin Air Compressor Company of Franklin, Pa., have applied for a charter, with a capital stock of $300,000. Half of this is said to have been taken by parties at Franklin and the other half by J. W. Donnelly of Chicago, Ill. The concern will build a plant at Franklin to manufacture pneumatic tools.

The Blakesiee Mfg. Company, Birmingham, Ala., are having a large demand for their veneer cutting machinery and gas and gasoline engines. They are running considerably overtime.

The Bessemer Foundry & Machine Company, Bessemer, Ala., who broke ground on September 1, commenced to manufacture on January 10, since which date their force has been kept fully employed up to the present. Their staple manufacture is castings for blast furnaces and rolling mills, and sugar and mining machinery. The working members of the company are men of considerable experience in the branch. Louis Hoster, the president, was at different times connected with the Shickle, Harrison & Howard Company, St. Louis, and the Howard-Harrison Company, Bessemer; H. F. Mundes, the vice-president, has been in the business since 1868, latterly connected with the United States Cast Iron Pipe & Foundry Company in the capacity of foreman of the pattern shop; the secretary, Rudolph Wegelin, has been identified with the business since 1876, having been with the Hardy, Tynes Company, Birmingham, 11 years and 3 years with the United States Cast Iron Company and their predecessors, occupying with both concerns the position of foreman of the general foundry.

The Birmingham Machine & Foundry Company, Birmingham, Ala., whose shops were destroyed by fire in June last, have erected new buildings which will greatly increase the former capacity of the works. The motive power is supplied by steam and electricity, the plant as a whole being of the most modern character. The works have been partially running since July and will be in full force by April 1. A number of orders for heavy Corliss engines, sugar machinery and other special work are in hand.

Hardware.

F. E. Kohler & Co., Canton, Ohio, have secured a lot adjoining their plant and intend to enlarge their factory as soon as the spring rush is over.

The organization of the Chilcott-Evans Chain Company, at Pittsburgh, is under way. This concern are composed of five Chilcott brothers and Daniel Evans, who propose to put up a plant in lower Allegheny for the manufacture of chain of all kinds.

The Pittsburgh Stove & Range Company, at Pittsburgh, have closed out their entire retail business on stoves and ranges, and only retail castings now. This protects all their dealers on the full line of goods they make.

The stockholders of the Mahoning Mfg. Company of Youngstown, Ohio, recently incorporated with a capital stock of $100,000, held a meeting last week and elected the following Board of Directors and officials: J. C. Wick, president; Grant McCargo, vice-president; H. B. Wick, treasurer; J. H. Bailey, secretary; J. F. Bonnell, general manager. The product of this concern at the present time is rivets, but it is the intention to manufacture railroad supplies of all kinds.

As noted in these columns some months since, Norton Door Check & Spring Company, Boston, have discontinued the manufacture and sale of door checks, and there is no stock on hand.

Miscellaneous.

The Lucas Machine Tool Company, recently organized in Cleveland as builders and designers of machine tools and special machinery, have taken quarters in the plant formerly occupied by the Brush Electric Company and are commencing operations. The plant is being equipped with new machinery, furnished by the Cincinnati Milling Machine Company, Foswick & Holloway, Warner & Swasey Company and other well known concerns. Interested in the company are Henry W. Lucas, George C. Lucas and Frank Yost. The first mentioned gentleman was with the Warner & Swasey Company for 15 years.

The Reliance Mfg. Company of Cleveland, manufacturers of steam gauges and steam specialties, have changed their name to the Wright Mfg. Company This is the outcome of a suit which was settled in the Common Pleas Court in that city recently between the Reliance Gauge Column Company and the company mentioned. There was no contest, both parties coming to an agreement upon the proceedings in order to settle a difference of long standing. The defendants in the suit were enjoined from using the word Reliance either upon their steam boiler appliances or in their corporate name. In return the plaintiffs relinquished all claims for infringements upon their patents and settled cases now pending in the Federal courts. Mr. Wright, president of the Wright Mfg. Company, states that his company are to be reincorporated on a broader basis and the business is to be extended.

The Wellman-Seaver Engineering Company, Cleveland, have been appointed consulting engineers for an addition to a large steel plant being erected by La Societe des Acieres de Longwy, Mont St. Martin, France. It will include an open hearth melting plant, steel foundry, plate mill and bar mills, and the local concern will assist in designing and laying out the plant in accordance with latest and best American methods. The plant will be built within a year and a half and nearly all of the machinery will be produced in this country, much of it in Cleveland. Among other foreign work the Wellman-Seaver Company are supervising the building of a large plant for the Patent Bolt & Nut Company at Birmingham, England, and have charge of the erecting and fitting of the Imperial Steel Works in Japan.

The Climax Mfg Company, Corry, Pa., manufacturers of Climax tramway locomotives and logging cars, also Climax double cylinder high speed engines and Climax drilling and pumping engines, are building a locomotive and six flat cars, which will go to Cape Nome, Alaska, on a new road that is to be built up the river from Nome City, 12 miles, and which road will be located further north than any other in the world. The Climax Mfg. Company are also building a 35-ton locomotive for British Columbia and four for Washington.

The officials of the Baltimore & Ohio Railroad are working on a new steel wrecking car, which is expected to meet all the exigencies of the heavy steel car in a wreck. It is an interesting problem to handle the steel car in a wreck, as the wrecking apparatus now in use for the most part is wholly inadequate to handle one of these cars, when it is loaded with 100,000 pounds. To break up or burn the cars is impracticable, and the increased weights render powerful wrecking appliances imperative.

The New York Metal Ceiling Company of New York City have been incorporated, with a capital of $40,000, by Lee McCollum and T. H. Stewart.

The incorporation is announced from Olympia, Wash., of the Ore Vaporizing Furnace & Condensing Company, with a capital stock of $100,000,000 and headquarters at Spokane, Wash. The company propose to float a device for condensing smoke from smelting furnaces.

The Monongahela Consolidated Coal & Coke Company, at Pittsburgh, are making arrangements to pay their first dividend on stock and the interest on bonds early next month. The sum required for this purpose will be about $75,000. The offices of the company will be moved about April 1 to the building purchased some time since at Market and Water streets, and which is now being remodeled.

The Chattanooga Pipe & Foundry Company, Chattanooga, Tenn, were organized in December for the manufacture of cast iron soil pipe and plumbers' supplies. Their main building is in the form of a cross, 320 feet each way and 60 feet wide. In addition the machine shop is 120 x 60 feet and two stories high. They are built of stone and brick, the roofs being German terra cotta tile. It is expected to turn out the first heat of pipe between April 15 and May 1.

Requiring greater facilities for handling their enlarged business, Lee, Cowan & Bowen, manufacturers of carriage, wagon and truck springs, Syracuse, N. Y., have ordered new and up to date machinery, and with an increased force will soon be in position to fill orders much more promptly.

The Berlin Iron Bridge Company of East Berlin, Conn., have increased their capital stock to $750,000, and have made extensive purchases of land at Pittsburgh, Pa., where they will start a branch. They have already placed the orders for the greater portion of their machinery equipment and are now at work on the plans for the buildings, which will be quite extensive, and will be designed and built by themselves at their own shops. It is intended that this plant shall be fully equipped with all modern appliances for doing all classes of steel bridges and structural work. In fact, the layout promises that it will be the best plant of the kind in this country.

On April 1 the Monongahela River Consolidated Coal & Coke Company, at Pittsburgh, will formally take over their mines and various other properties, and concentrate the management of their affairs in the general offices to be established at the corner of Wood and Water streets, Pittsburgh.

The cement department of the Brier Hill Iron & Coal Company, manufacturers of Brier Hill Portland cement, at Youngstown, Ohio, is closed down at present for repairs. The plant is equipped to turn out about 225 barrels of cement daily, and it is the intention to remodel it and increase this output about 100 barrels a day.

The molders and helpers employed by Taplin, Rice & Co., at Akron, Ohio, who went on strike last week for a 10 per cent. advance, have returned to work, a compromise having been made on the basis of an advance of about 6 per cent.

PERSONAL.

Fred. Bishop has resigned his position as superintendent of the rolling mill department of the Southern Car & Foundry Company, at Anniston, Ala., and has been succeeded by Charles W. Cook.

Percy Carlisle Gilchrist, F.R.S., a vice-president of the British Iron and Steel Institute, and one of the inventors of the Thomas-Gilchrist, or "basic" steel process, has been declared by the English courts of unsound mind and incapable of managing his affairs. Much sympathy is felt for Mr. Gilchrist at this sad termination of a brilliant career. He is only 49 years of age, and has been regarded as one of the foremost figures of the steel industry.

Frank Samuel of Philadelphia has just returned from a three months' tour in Europe, during which period he gave special attention to the iron producing interests on the Continent. He visited the ore mines in Bilbao and other districts in Southern Europe, and also the fire brick works in Austria and in Buda-Pesth, accepting the sole agency of the Mansfield Works of that city.

The Apollo Reference Book.—A copy of the second vest pocket edition of the reference book, printed in red and black and with gilt edges and leather binding, comes to us from the Apollo Iron & Steel Company, Pittsburgh, Pa. Those who buy and use sheet iron will find it of great value. After showing, by means of a half-tone engraving, a bundle of their best bloom galvanized sheets and the method of stenciling, the book gives the weight per square foot in ounces and the list price on all gauges from 10 to 30, and the charges for extra length and widths. It also gives similar data on Apollo special soft steel and Apollo refined sheets. It gives the thickness of sheets of various gauges in fractions of an inch and in decimals, and also the United States standard gauge. Another useful table is the net price per pound and per square foot at discounts from the list ranging from 65 and 5 to 80, 7½ and 2½ per cent. Tables give the weight of corrugated sheets for 100 square feet and the number of corrugated sheets in 100 square feet. The weight of a sheet and a bundle, and the number of sheets in a bundle, makes another useful table. The book contains a number of blank pages for memoranda, and in addition to the valuable information it contains is to be commended for its exceptionally attractive appearance.

John Stanton reports the Copper production in the United States and of the foreign reporting mines and United States exports as follows, in gross tons of 2240 lbs.:

	Reporting mines.	Outside sources.	Total U. S. product.	Product foreign mines.	U. S. exports.
First half 1895....	70,612	9,100	79,712	42,484	34,215
Second half 1895..	84,885	6,600	91,485	43,674	30,507
Total 1895....	155,497	15,700	171,197	86,178	64,722
First half 1896 ...	94,180	7,200	101,380	42,205	58,216
Second half 1896..	95,314	7,200	102,514	43,941	67,287
Total 1896	199,494	14,400	203,894	86,196	125,503
First half 1897....	103,651	5,000	108,651	44,263	64,870
Second half 1897..	100,555	6,900	107,455	44,007	64,340
Total 1897	204,206	11,900	216,106	88,270	129,210
First half 1898	112,657	7,800	120,457	40,880	68,284
Second half 1898..	103,535	10,250	113,785	43,674	76,831
Total 1898.	216,222	18,050	234,272	84,554	145,115
First half 1899 ..	111,987	12,500	124,487	43,629	56,460
Second half 1899..	118,818	18,900	137,719	45,611	68,351
Total 1899.....	230,806	31,400	262,206	89,240	119,811
January, 1900.....	17,613	3,400	21,013	5,868	14,503
February, 1900....	17,497	3,400	20,897	7,241	12,749

The Iron and Metal Trades.

No important developments have occurred during the week suggestive of the future course of the Iron trade. The situation in Bessemer Pig continues strong, with rather heavy transactions at Pittsburgh and in the East. Large consumers are in need of more material of this character. The demand for Foundry Pig Iron, on the other hand, is not what it should be at this time, and on some grades concessions must be made to secure orders. It is possible that if the good demand for Bessemer Pig continues the Foundry Pig situation may be relieved by the diverting of furnaces from Foundry to Bessemer provided supplies of Ore can be obtained.

The outlook is becoming more favorable for export business in Pig Iron. Foreign buyers are now in this city negotiating for large lots. In one case 18,000 tons are wanted, and in another 10,000 tons. The foreign demand covers Bessemer, Basic and Foundry grades. Prices in England have been advancing sharply, and a very small difference in price now obtains between the views of foreign buyers and American producers. The English market has apparently been kept down by fear of American competition. It was thought on the other side that our prices here were not strongly held, and that American makers were likely to put their rates as low as necessary to capture foreign business. If satisfactory arrangements can now be made for freight room it is likely that considerable business for export will soon be put through.

With such a prospect for enlargement of trade abroad, a moderate reduction in Pig Iron prices here would not be a serious matter for all business interests concerned. The shortage of Iron in Europe offers an opportunity for the disposal of a surplus here.

Representatives of large Steel interests continue to express the utmost confidence in the situation. They claim that their position in respect to contracts now on their books is such that they can maintain values until consumers are compelled to cover their requirements.

Sheets have advanced sharply in the West under the influence of the approaching consolidation of the Sheet mills. It is officially denied that the Apollo Iron & Steel Company will enter the consolidation.

The American Tin Plate Company are now taking orders for delivery during the third quarter of the year.

Copper continues to show an upward tendency.

The machinists' strike looks ugly. The failure to agree upon a settlement at Chicago has been followed by a declaration by the representatives of the Machinists' Union that the strike shall be extended to other cities throughout the country. It is hoped, however, that a settlement will be effected before it attains such formidable proportions.

A Comparison of Prices.

At date, one week, one month and one year previous.

Advances Over the Previous Month in Heavy Type. Declines in Italics.

	Mar. 21, 1900.	Mar 14, 1900.	Feb 21, 1900.	Mar. 22, 1899.
PIG IRON:				
Foundry Pig, No. 2, Standard, Philadelphia	$22.50	$22.50	$22.50	$15.50
Foundry Pig, No. 2, Southern, Cincinnati	20.25	20.25	20.25	14.25
Foundry Pig, No 2, Local, Chicago.	23.50	23.50	23.50	15.00
Bessemer Pig, Pittsburgh	**24.90**	24.90	24.50	15.15
Gray Forge, Pittsburgh	21 00	21.00	21.00	14.25
Lake Superior Charcoal, Chicago	25.50	25.50	25.50	17.00
BILLETS, RAILS, ETC.:				
Steel Billets, Pittsburgh	*33.00*	33.00	33.50	25.50
Steel Billets, Philadelphia	*35.50*	35.50	36.50	26.00
Steel Billets, Chicago	36.00	36.00	nom	25.50
Wire Rods, Pittsburgh	nom	nom	nom	31.50
Steel Rails, Heavy, Eastern Mill	35.00	35.00	33.00	26.00
Spikes, Tidewater	*2.60*	2.60	2.65	1.70
Splice Bars, Tidewater	2.20	2.20	2.20	1.40
OLD MATERIAL:				
O. Steel Rails, Chicago	*18.00*	18.00	19.00	11.25
O. Steel Rails, Philadelphia	**23.50**	23.50	22.00	14.25
O. Iron Rails, Chicago	*22.00*	22.00	23.00	18.00
O Iron Rails, Philadelphia	*25.00*	25.00	26.00	17.00
O. Car Wheels, Chicago.	24.00	24.00	24.00	15 00
O. Car Wheels, Philadelphia	22 00	22 00	22.00	15.00
Heavy Steel Scrap, Chicago	17.00	17.00	17.00	11.25
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia,	*2.15*	2.20	2.20	1.50
Common Iron Bars, Youngstown	2.15	2.15	2.15	1.40
Steel Bars, Tidewater	**2.50**	2.50	2.40	1.50
Steel Bars, Pittsburgh	2.25	2.25	2.25	1.45
Tank Plates, Tidewater	*2.05*	2.15	2.25	2.00
Tank Plates, Pittsburgh	*2.00*	2.00	2.10	1.85
Beams, Tidewater	2.40	2.40	2.40	1.55
Beams, Pittsburgh	2.25	2.25	2.25	1.40
Angles, Tidewater	2.40	2.40	2.40	1.45
Angles, Pittsburgh	2.25	2.25	2.25	1.40
Skelp, Grooved Iron, Pittsburgh	**2.00**	2 00	1.95	1.50
Skelp, Sheared Iron, Pittsburgh	*2.10*	2.15	2.25	1.70
Sheets, No. 27, Chicago	3.20	3.20	3.20	2.45
Sheets, No 27, Pittsburgh	3.00	3.00	3.00	2 40
Barb Wire, f.o.b. Pittsburgh	3.80	3.80	3.80	2 50
Wire Nails, f.o.b. Pittsburgh	3.20	3.20	3.20	2.00
Cut Nails, Mill	2.50	2.50	2.50	1.50
METALS:				
Copper, New York	**16.50**	16.37½	16.25	17.00
Spelter, St. Louis	*4.40*	4.45	4.57½	6 05
Lead, New York	4.70	4.70	4.70	4.45
Lead, St. Louis	4.57½	4.57½	4.57½	4.25
Tin, New York	**31.85**	33.00	31.75	28.65
Antimony, Hallett, New York	9.75	9.75	9.75	10.00
Nickel, New York	38.00	38.00	38.00	38.00
Tin Plate, Domestic, Bessemer, 100 lbs. New York	4.84	4.84	4.84	4.10

Chicago. (*By Telegraph.*)

Office of *The Iron Age*, 805 Fisher Building,
CHICAGO, March 21, 1900.

Improvement in the market this week is prospective rather than actual. The tone is decidedly better. It is said that Plates at last show resistance to further weakness with signs of reaction. All products from mill are firm. Transactions for the near future are growing in volume. The tentative inquiries for products to be delivered during the second half of the year have not led to any purchase, but a certain amount of nervousness exists among buyers, who are delaying beyond the usual period the closing of contracts for future needs. Judging from the present demand for quick shipment the current consumption appears to be slightly on the increase. However, no notable sales are reported this week.

Pig Iron.—Buying is no greater than a week ago. Business is confined mainly to small orders for quick shipment at unchanged quotations. No transactions are reported above 1000 tons. Inquiries are fairly good, one being for about 5000 tons, to be delivered at the rate of 1000 tons per month. But buyers are not venturing far beyond the middle of the year. They are still looking for the expected decline in prices. It is noted that the margin between high and low grades of Southern Iron is tending to widen a little. Nos. 1 and 2, both Foundry and Soft, are scarce and firm, but with some of the new furnaces the low grade Iron is in excess, with corresponding easiness of tone. The urgency of melters' needs is as great as ever. At least two Southern sellers have been compelled during the past few days to buy Iron against the sales they have made to foundrymen and delayed shipments are quite commonly reported. We quote for cash as follows:

Lake Superior Charcoal	$25.50 to $26.00
Local Coke Foundry, No. 1	24.50 to 25.00
Local Coke Foundry, No. 2	23.50 to 24.00
Local Coke Foundry, No. 3	22.50 to 23.00
Local Scotch, No. 1	25.00 to 25.50
Ohio Strong Softeners, No. 1	24.50 to 25.50
Southern Silvery, according to Silicon	25.50 to 27.00
Southern Coke, No. 1	22.85 to 23.35
Southern Coke, No. 2	21.85 to 22.35
Southern Coke, No. 3	20.85 to 21.30

Southern Coke, No. 1 Soft	22.85 to	23.35
Southern Coke, No. 2 Soft	21.85 to	22.85
Foundry Forge	20.85 to	....
Gray Forge and Mottled	20.85 to	....
Southern Charcoal Softeners, according to Silicon	21.85 to	25.85
Alabama and Georgia Car Wheel	24.85 to	25.85
Malleable Bessemer	25.00 to	26.00
Standard Bessemer	.... to	....
Jackson County and Kentucky Silvery, 8 per cent. Silicon	32.30 to	32.80

Bars.—The Bar market seems to be one of the centers of activity. Without exception, producers say business shows quite an increase in sales. One large factor to the market reported the largest mail orders last Monday since the new year opened. And with the greater inquiry there is a firmer tone. Any tendency toward weakness has disappeared for the present. Makers of both Iron and Steel Bars are holding fast to circular quotations. Store trade has softened slightly in harmony with easiness at other competing centers. The character of buying continues almost exclusively for early requirements. It is a modest estimate to say that from 5000 to 10,000 tons of Bars were sold here during the week. Mill shipments are quoted at 2.30c. to 2.40c. for Common Iron, 2.35c. to 2.45c. for Soft Steel and 2.65c. for Bands. Jobbers quote Iron at 2.75c., Soft Steel at 2.60c. to 2.65c. and Norway and Swedish Iron, 4c.

Car Material.—There is revived interest in Cars, and some good sized lots of material have been placed, including one for 1500 Steel Axles. The Wabash is in the market for from 3000 to 4500 box cars, and from 1000 to 1500 coal cars. Inquiries for other lots have appeared.

Structural Material.—The contract for the Emmons Blaine School has been placed. It requires about 500 tons of Shapes. Other local structures are waiting for the end of the labor troubles. Bridge work is becoming more prominent, invitations to bid on country work being quite numerous. The demand for Structural Material is coming from all parts of the West, and promises a very fair tonnage. Mill shipments are quoted as follows, Chicago delivery: Beams, Channels and Zees, 15-inch and under, and Angles, 3 to 6 inches, 2.40c.; Beams, &c., 18 inches and over, and Angles over 6 inches and under 3 inches, 2.50c.; Tees, 2.45c.; Universal Plates, 2.30c. to 2.40c. Local yards are quoting small lots of Beams and Channels at 2.90c. to 3c.; Angles, 2.70c. rates, and Tees, 2.85c.

Plates.—The undertone to Plates is distinctly better. There is comparatively little trade, but from a variety of sources new demand is springing up in a small way. Chicago business continues dull, owing to the strikes. Transactions have been closed on a somewhat higher basis than extreme low quotations, and the sentiment of mills is optimistic. Quotations on mill shipment, Chicago delivery, are as follows: Tank, 2.30c. to 2.40c.; Flange, 2.50c. to 2.60c.; Marine, 2.80c. to 2.95c.; Fire Box, 3.30c. to 5.50c. Jobbers continue to quote Tank from store at 2.70c. to 2.80c., and Flange, 3c. to 3.25c.

Merchant Pipe.—Trade in Pipe exhibits no noteworthy features, but is seasonably active. Prices continue on the following basis:

CARLOAD PRICES.

Sizes.	Black.	Galvanized.
⅛ to ⅜ inch	25 and 10	17
½ inch	25 and three 10s	20, 10, 2½
¾ inch	25, four 10s and 5	20, two 10s, 2½
1 to 4 inches	25, four 10s, 7½	20, two 10s and 5
4½ to 12 inches	25 and four 10s	20 and two 10s
1 to 4 inches, R. & P.	25, four 10s, 2½	20, two 10s, 2½

LESS THAN CARLOADS.

Sizes.	Black.	Galvanized.
⅛ to ⅜ inch	25 and 2½	10
½ inch	25, 10, 10, 2½	20 and 5
¾ inch	25, three 10s, 7½	20, 10 and 5
1 to 4 inches	25 and four 10s	20, 10, 7½
4½ to 12 inches	25, three 10s, 2½	20, 10, 2½
1 to 4 inches, R. & P.	25, three 10s and 5	20, 10 and 5

Sheets.—All mills which are to be included in the new combination have shut down for two weeks for inventory. Many have withdrawn entirely from the agreement, others limiting business to the disposal of small stocks at hand. A number of agencies are preparing to go out of business, and trade is varied by the degree of earnestness with which holders wish to dispose of stock. From store all kinds of prices have been heard this week, ranging from 75 to 70 per cent. for Galvanized, mill quotations being fairly regular at 70 and 10 per cent. Black Sheets are well held at about 3.20c. to 3.30c. from mill, and 3.45c. from store. The current selling is generally interpreted by the trade as being preliminary to stronger prices in the near future.

Merchant Steel.—Consumers of Merchant Steel have reappeared in the market in larger numbers than for many weeks. They are taking only small lots, but the total business makes gratifying gains over recent comparisons. One large seller has just booked the heaviest weekly tonnage of the present year. Mill shipments, Chicago delivery, are quoted as follows: Smooth Finished Machinery Steel, 2.80c. to 2.90c.; Smooth Finished Tire, 2.80c. to 3c.; Open Hearth Spring Steel, 3.50c. to 3.65c., base; Toe Calk, 3.20c. to 3.50c., base; Sleigh Shoe, 2.75c. to 3c.; Cutter Shoes, 3.45c. to 3.65c.; Ordinary Tool Steel, 7c. to 7½c.; Special, 13c. and upward.

Billets.—No Billets are in the market, and quotations are nominally a repetition of the old prices, or about $36 for Bessemer Billets.

Rails and Track Supplies.—The outlook for railway construction in the West and Southwest is most encouraging. Inquiries for moderate tonnage are more numerous, and every sign points to the placing of perhaps 300,000 tons for Western delivery before the present season of track laying ends. Mills continue to turn down orders because deliveries asked for cannot be promised. A few small lots of both Standard and Light Sections have been sold. Prices are strong at $35 to $40. Track Fastenings have also been active this week, one sale including 2000 tons of Spikes. Prices of Track Fastenings are as follows: Steel Fish Plates, 2c. to 2.25c.; Iron Fish Plates, 2.30c.; Spikes, 2.60c. to 2.70c.; Track Bolts, with Hexagon Nuts, 3.95c. to 4c.; Square Nuts, 3.80c. to 3.85c.; Steel Links and Pins, 3.20c.; Iron Links and Pins, 3.15c.

Old Material.—The market inclines to sluggishness. One railway includes in its offerings this week only about 1300 tons of Old Rails, Steel and Iron, and another railway specifies about the same tonnage of Miscellaneous Scrap. Consumers are buying sparingly. Approximate quotations are as follows, per gross ton:

Old Iron Rails	$22.00 to	$23.00
Old Steel Rails, mixed lengths	18.00 to	19.00
Old Steel Rails, long lengths	20.00 to	21.00
Relaying Rails	28.00 to	30.00
Old Car Wheels	24.00 to	24.50
Heavy Melting Steel Scrap	17.00 to	18.00
Mixed Steel	12.50 to	13.00
Iron Fish Plates and Angle Bars	22.00 to	23.00
Steel or Mixed Iron and Steel ditto	18.50 to	19.00
Iron Car Axles	26.50 to	27.00
Steel Car Axles	23.50 to	24.00
No. 1 Railroad Wrought	22.00 to	22.50
No. 2 Railroad Wrought	18.50 to	19.00
Shafting, Iron and Soft Steel	18.50 to	19.00
No. 1 Wrought	16.00 to	17.00
No. 1 County Wrought	14.00 to	15.00
No. 1 Mill	11.00 to	11.50
No. 2 Mill	7.50 to	8.00
No. 1 Busheling	13.50 to	14.00
No. 2 Busheling	9.50 to	10.00
Iron Car Axle Turnings	14.00 to	14.50
Soft Steel Car Axle Turnings	13.00 to	13.50
Machine Shop Turnings	12.00 to	12.50
Wrought Drillings	11.00 to	11.50
Cast Borings and Drillings	8.50 to	9.00
Mixed Borings and Turnings	8.50 to	9.00
No 1 Boilers, cut	12.50 to	13.00
No. 2 Boilers, cut	6.00 to	6.50
Boiler and Ship Scrap	14.50 to	15.00
No. 1 Cast	13.00 to	14.00
No. 2 Cast	9.00 to	9.50
Railroad Malleable Cast	15.00 to	15.50
Agricultural Malleable Cast	13.50 to	14.00

Metals.—The local trade is dull, in sympathy with the idleness of many plants. Prices hold steady. Lake Superior is quoted in car lots at 17¼c., and Casting brands at 17c. Pig Lead is dull, especially for the local trade. Quotations are firm at 4.65c. for Desilverized, and 4.75c. for Corroding.

Philadelphia.

Office of *The Iron Age*, Forrest Building, PHILADELPHIA, PA., March 21, 1900.

(By Telegraph.)

The market is very weak, and some extremely low prices for Pig Iron have been put out to-day. There is great pressure to sell in some quarters, and it is said that as much as $1 per ton reduction has been quoted without securing any large amount of business. There is some weakness in Bars and Plates, but Sheets are firmer, and for these specialties prices are about as quoted by mail. The weakness applies chiefly to Pig Iron.

(By Mail.)

The market remains in much the same condition as during the past several weeks. Theoretically the situation is improving, but when tangible evidence is asked for, it is not easy to find it. Prices are in no case better than they were a week ago, and in some lines they are not as good as they were then. There is a strong belief, however, that in the very near future the trend of the market will change: 1, Because consumption has not fallen off to any appreciable extent, and 2, because there is at least a reasonable expectation that it will soon begin to increase. The weakness is, and has been, due to an expansion in production, which, however, is

believed to have reached its limit, temporarily at all events. Then, again, there has been an unevenness in supplies, which is now in process of adjustment. There has been something of a surplus in Foundry and Mill Irons, but this will be corrected by switching furnaces to Basic and Bessemer, which is relatively scarce, so that there is at least a fair probability that the Pig Iron situation is on the eve of improvement. There is some weakness in Plates, but this does not necessarily indicate that it will go much further, or that prices will continue on their present basis. It is claimed, however, that Plates reached prices out of proportion with the rest of the market, and that 2.20c. to 2.30c. for ordinary Plates would be about right, considering the quotations on other rolled materiai. Nevertheless, with the high cost of labor and primary materials, there is very little money in Plates at the prices now quoted. It is an anxious time with manufacturers, as they consider it somewhat dangerous to be heavily loaded with orders at present prices, while at the same time they cannot reconcile themselves to seeing their trade carried off by competitors. The difficulty in estimating the situation is increased by the indefinite position which is occupied by the trusts. If they see it to their interests to drop prices they will drop, and *vice versa*, or if it suits them to manipulate some particular end of their business they will do it, and it may be taken for granted that it will not be done with a view of helping outside interests. To be able to form any decided opinion in regard to the course of the market, therefore, it will be necessary to ascertain what tonnage is likely to be wanted, and what tonnage can be supplied. Outsiders may guess at it, but the combines have an enormous advantage in being able to increase or decrease the output of any of the specialties in a way that will make it a troublesome market for independent concerns. There appears to be a good reason, however, for expecting a very large volume of business during the next six months, and it is believed that there is a fair chance of better prices than are ruling at the present time.

Pig Iron.—Prices are not as good as they were a week ago, neither is demand as active as was expected. A great many inquiries continue to be sent in, but they do not bring the amount of business that was expected, and, as a consequence, some holders are inclined to quote lower figures. But there is only a limited amount of business taken anyway, and the 20c. to 30c. concessions which have been granted do not increase the size of the orders at all. It would be a great mistake, however, to estimate consumption in accordance with the amount of Iron sold. Deliveries were never as large at this season of the year as they have been during the past three months, the object of consumers being to clean up old contracts, some of which are no doubt at much lower prices than those now ruling. As these run out new purchases may be expected on a large scale, but whether they will be at higher or lower prices than those of to-day is something that time alone can show. The fact that there is a scarcity of Bessemer and Basic grades, and that furnaces are switching on to these, instead of continuing on Foundry grades, may cause quite a change in a little while. There is no particular surplus of Foundry Irons, but there has been considerable pressure to sell for summer and fall delivery, and if this is withdrawn, it may change the complexion of the market completely. Be this as it may, the small amount of Pig Iron in sight and the certainty of a heavy consumption are not calculated to encourage bearish anticipations, although, as we said before, prices are easier and the immediate demand smaller than has been expected. Prices cover the following range for seaboard or nearby deliveries, and a trifle less for deliveries within a radius of 100 miles South or West: No. 1 X Foundry, $23.25 to $24; No. 2 X Foundry, $22.50 to $23; No. 2 Plain, $21.50 to $22; Basic, $22 to $22.50; Bessemer, nominal, $22.25 to $22.50; Low Phosphorus, $27 to $28; Charcoal Iron, $27 to $29.

Billets.—There is absolutely no change in the Steel situation. Holders ask $35.50 to $36, but buyers are pretty well satisfied that bids of $35 would not wait long before they were accepted.

Plates.—The market is weak and lower prices have been made during the past few days than at any period within the past six months. No particular reason is given for the weakness, except that some of the mills are determined to scoop in some orders without much regard to price. There is a fair amount of business doing, but the output is very large, consequently there is keen competition to get as much business as possible. Seaboard deliveries are quoted about as follows: Steel Plates, ¼-inch and thicker, 2.05c. to 2.10c.; Shell Plates, 2.20c. to 2.25c.; Flange, 2.45c. to 2.55c.; Charcoal Iron Plates, C. H. No. 1, 3c.; Best Flange, 3.50c.; Fire Box, 4c.

Structural Material.—There is no change in this department. Business comes in very satisfactorily, but with the exception of 3000 tons taken by the Phœnix for the new car and locomotive shops for the Philadelphia & Reading Railway, at Reading, Pa., nothing but ordinary routine business has been done. Prospects are very good, however, and there is little doubt that the mills will have all they can do for many months to come. Prices are as follows: Beams and Channels, 15 inches and under, 2.40c.; Angles, 3 to 6 inches, 2.40c.; Zee Bars, 2.40c., f.o.b. Philadelphia; Angle Bulbs and Deck Beams, 2.68c.; Tees, 2.45c.

Bars.—The demand is not quite as strong as it was a week ago, but most of the mills are pretty well employed, and by shading prices a little it is not difficult to secure good sized orders. There is an easier feeling, however, and even among the associated mills it is claimed by outsiders that prices are not fully maintained, although quotations are nominally as follows for Philadelphia or nearby deliveries: Ordinary Iron, 2.05½c. to 2.10c.; Refined Iron, 2.15c.; Test Iron, 2.30c.; Steel Bars, 2.50c. to 2.60c.

Sheets.—Business is rather dull and buyers seem disposed to defer placing orders until the market is more settled. Meanwhile the mills are running moderately full, and for short deliveries are quoting about as follows for best Sheets—viz. (Common Sheets two-tenths less): No. 10, 2.70c. to 2.80c.; No. 14, 2.95c.; No. 16, 3c.; Nos. 18-20, 3.05c.; Nos. 21-24, 3.15c.; Nos. 26, 27, 3.25c.; No. 28, 3.35c. to 3.45c.

Old Material.—There is very little change in this department, and prices are just about as they were a week ago. There is some scarcity of Steel Scrap, but other descriptions are in full supply. Bids and offers for deliveries in buyers' yards are about as follows: Choice Railroad Scrap, $23 to $25; No. 1 Yard Scrap, $19 to $20; No. 2 Light Scrap, $14 to $14.50; Machinery Cast, $17 to $17.50; Heavy Steel Scrap, $22.50 to $23; Old Iron Rails, $25 to $27; Old Steel Rails, $23.50 to $24; Wrought Turnings, $15 to $15.50; Cast Borings, $13.50 to $14; Old Car Wheels, $22 to $23; Iron Axles, $26 to $28; Steel Axles, $27 to $29.

Frank Samuel has been appointed sole agent in the United States and Canada for the Mansfield Dead Burned Magnesite and Magnesite Brick of Buda Pesth, Austria.

Pittsburgh.

Office of *The Iron Age*, Hamilton Building, Pittsburgh, March 21, 1900.

(*By Telegraph.*)

Pig Iron.—The market on Bessemer Pig Iron continues very strong, and about 10,000 tons have been sold in the past week at $24, Valley. With tonnage already sold and under negotiations, the output of the Valley furnaces to July 1 is largely under contract, and on any more large blocks of Iron sold deliveries would have to run into the second half. For this reason the Bessemer Furnace Association has decided between now and April 1 to fix the price of Bessemer Iron for second half of the year. It has also been decided by the Furnace Association to include Basic Iron, and this will be sold hereafter on the same plan as Bessemer. It is probable the price of Basic will be $2 or more under that of Bessemer. Forge Iron is in fair demand at $21, Pittsburgh, but on a firm offer and large lot this price might be shaded. Only small lots of Foundry Iron are being sold, and No. 2 Soft Foundry is $23, Pittsburgh. We quote Bessemer at $24, Valley; Southern No. 2 Foundry, $22 to $22.50; local No. 2 Foundry, $23; Eastern or Gray Forge, $20.50; local Forge, $21; Bessemer, $24.90, in large lots from the furnaces, all f.o.b. Pittsburgh. A few small lots of Bessemer Iron from outside furnaces could probably be had at about $24.50, Pittsburgh, or perhaps less. We note sales of about 10,000 tons of Bessemer Iron to a large Steel interest at $24, Valley, and 2000 tons of Gray Forge at about $21, Pittsburgh.

Steel.—The market is very dull, and we do not hear of any sales, except small lots of 50 to 100 tons. We quote nominally at $33 to $34, at mill. For a round lot of Steel for extended delivery a lower price would be made.

Sheet Bars.—One leading interest is reported to have orders on its books for about 200,000 tons of Sheet Bars.

We quote at $36, at mill, and note that the market is very strong at that price.

Iron and Steel Scrap.—There is very little doing in Scrap, and prices on some kinds are lower than last week. Dealers in Scrap are apparently more anxious to sell than consumers are to buy. We quote No. 1 Railroad Wrought Scrap, $21 to $21.50 net ton; Cast Iron Borings, $11.25 to $11.50 net ton; Cast Iron Turnings, $13; Old Iron Rails, $25.50 gross ton; Heavy Smelting Stock, $21.50 gross ton; Steel Rails, short pieces, $23 to $23.50; Railroad Cast Scrap, $15 gross ton; Old Horseshoes, $20 net ton. We note a sale of about 200 tons of No. 1 Railroad Wrought Scrap at about $21, delivered at buyer's mill.

Sheets.—Prices on Black and Galvanized Sheets are much higher, owing principally to the fact that the Sheet deal is practically certain to go through. Small lots of No. 27 have sold at 3.10c., and No. 28 at 3.20c. None of the mills will sell ahead.

(By Mail.)

During the week the Standard Chain Company have taken over nine or ten of the leading Chain plants in the country, and general offices will be opened in the First National Bank Building, Pittsburgh. A final meeting of the Sheet mills is to be held in New York, Monday, March 26, when it is expected this important deal will be put through. The situation in Finished Material continues quiet, and there is a good deal of disappointment in the trade over the fact that demand is not larger. While most of the mills are pretty comfortably fixed just now, yet it is a fact that if demand does not improve some of them will soon be in urgent need of tonnage, and if this condition comes it is not unlikely prices would be lower. It was confidently expected that by the middle of March spring demand would be here, and a good deal of tonnage be placed. This has not proven to be the case, as buying is light and mostly for small lots. Buyers are very conservative, placing orders only for immediate requirements, being willing to take chances of prices advancing. The opinion has been expressed that unless demand soon improves it is a good deal of a question whether present prices can be sustained. The situation in Bessemer Pig continues strong, and $24, at furnace, for Valley Iron seems to be the minimum of the market. Steel continues very dull, and only small lots are being sold at prices ranging from $33 to $34, at mill.

Ferromanganese.—We quote 80 per cent. Ferromanganese at $100 a ton, delivered at buyer's mill. A sale of 100 tons, for extended delivery, is reported at that price. For small lots of a few tons $125 is quoted.

Plates.—Several of the leading Plate mills advise us that the low prices on Plates are stimulating demand considerably, and in the last three or four days orders have been very much better. As yet there is no improvement in prices. We quote Tank, ¼-inch and heavier, at 2c.. at mill. In exceptional cases and for very desirable orders, this price has been slightly shaded. However, the market to-day seems to be all of 2c., at mill, with some mills that are filled up for two or three months quoting 2.10c. We quote Shell, 2.15c. to 2.25c.; Flange, 2.25c. to 2.35c.; Marine, 2.35c. to 2.45c.; Fire Box, 2.75c. to 3.25c., depending on quality.

Structural Material.—We are advised that there is an excellent demand, and the Structural mills are all filled up for the next two or three months. The Wanamaker Building, in Philadelphia, calls for a very much larger tonnage than 5000 tons, while deliveries run over two or three years. Some Eastern work, involving 5000 to 6000 tons, has recently been placed with a local mill. Considerable quantity of Western tonnage has also recently come to this city. Prices are unchanged, with the exception of Grooved Rolled Plates, which are lower. We quote: Beams and Channels, 15-inch and under, 2.25c.; over 15-inch, 2.35c.; Angles, 3 to 6 inch, 2.25c.; Angles, smaller than 3-inch and larger than 6-inch, 2.35c.; Flat Bars, 2.25c.; Pins, 2.25c.; Grooved Rolled Plates, 2.15c. to 2.25c.; Universal Mill Plates, 2.30c. to 2.40c.; Tees, 3-inch and larger, 2.30c.; Zees, 3-inch and larger, 2.25c., all f.o.b. Pittsburgh.

Bars.—We can report a fair demand for Iron and Steel Bars, but not nearly as heavy as expected it would be at this time. The mills are fairly well filled up with specifications on old contracts and new tonnage that is being placed. We quote Steel Bars at 2.25c. in carload lots, and 2.35c. in small lots, f.o.b. Pittsburgh. We quote Common Iron Bars at 2.15c., at Valley mill. We note that a few outside mills are slightly shading these prices.

Sheets.—What is expected to be a final meeting of the Sheet mills is to be held in New York City on Monday, March 26, at which time it is expected the Sheet deal will be put through. Most of the mills are closed this week, taking inventory. Some of the mills are quoting prices only from day to day and on specifications. We quote No. 27 Black Sheets, box annealed, at 3c. to 3.05c.; No. 28, 3.05c. to 3.10c.; Galvanized Sheets are higher, and while a few mills may possibly name 75 off, 70 and 10 per cent., and 15c. freight, is being quoted in most cases.

Merchant Steel.—Demand is light, the mills running mostly on specifications on old contracts. Prices are weak, and in some cases lower. We quote: Soft Machinery Steel, 2.50c. to 2.60c.; Tire, 2.40c. to 2.50c.; Toe Calk, 2.75c. to 2.85c.; Open Hearth Spring, 3.25c.; Crucible, 3.50c.; Hammered Lay Steel, 4c. to 4.25c.; Rolled Lay, 3.50c. to 3.75c.; Plow Slabs, Bessemer, 2.50c.; Open Hearth, 2.75c.; Tool Steel, 7c. and upward, on which freight allowance is made not to exceed 25c.; terms, except Tool Steel, 30 days net cash. It is possible that on a nice specification the above prices might be shaded by some mills.

Skelp.—There is nothing of interest to note in the Skelp market. Demand is quiet, and prices are about as they have been for some time. We quote Grooved Iron and Steel Skelp at 2c., and Sheared at 2.10c. to 2.25c., depending on the order, all f.o.b. Pittsburgh.

Pipes and Tubes.—Demand for Tubing so far in March is referred to as being fairly satisfactory, comparing favorably with last September, tonnage in that month being exceptionally heavy. Jobbers of Pipes and Tubes in St. Louis, Chicago, Milwaukee, New York, Philadelphia, Boston, Pittsburgh and other points East and West have adopted discounts on Pipe in carload lots and less than carload lots to consumers, out of stock, as follows:

CARLOADS.

Sizes.	Black.	Galvanized.
⅛ to ⅜ inch	25 and 10	17
½ inch	25 and three 10s	20, 10 and 2½
¾ inch	25, four 10s and 5	20, two 10s and 2½
1 to 4 inches	25, four 10s and 7½	20, two 10s and 5
4½ to 12 inches	25 and four 10s	20 and two 10s
1 to 4 inches, plugged and reamed	25, four 10s and 2½	20, two 10s and 2½
Cut 3 to 6 feet.		
⅛ to ⅜ inch	20 and 2½	5
½ inch	25, 10 and 7½	20
¾ inch	25, three 10s and 2½	20 and 10
1 to 4 inches	25, three 10s and 5	20, 10 and 2½
4½ to 12 inches	25, two 10s and 5	20 and 5
Cut 6 feet and longer.		
⅛ to ⅜ inch	25 and 2½	.....
½ inch	25 and two 10s	20 and 2½
¾ inch	25, three 10s and 5	20, 10 and 5
1 to 4 inches	25 and four 10s	20, 10 and 7½
4½ to 12 inches	25 and three 10s	20 and 10
Extra strong, P. E.		
⅛ to ½ inch	25 and 10	.....
¾ to 2 inches	25, two 10s and 5	.....
2½ to 8 inches	25, 10 and 7½	.....

LESS THAN CARLOADS.

Size.	Black.	Galvanized.
⅛ to ⅜ inch	25 and 2½	10
½ inch	25, two 10s and 2½	20 and 5
¾ inch	25, three 10s and 7½	20, 10 and 5
1 to 4 inches	25 and four 10s	20, 10 and 7½
4½ to 12 inches	25, three 10s and 2½	20, 10 and 2½
1 to 4 inches, plugged and reamed	25, three 10s and 5	20, 10 and 5
Cut 3 to 6 feet.		
⅛ to ⅜ inch	17½	2½
½ inch	25 and 10	12½
¾ inch	25, two 10s and 5	20 and 2½
1 to 4 inches	25, two 10s and 7½	20 and 5
4½ to 12 inches	25 and two 10s	20
Cut 6 feet and longer.		
⅛ to ⅜ inch	20	2½
½ inch	25, 10 and 2½	17½
¾ inch	25, two 10s and 7½	20 and 7½
1 to 4 inches	25, three 10s and 2½	20 and 10
4½ to 12 inches	25, two 10s and 2½	20 and 2½
Extra strong, P. E.		
⅛ to ½ inch	25 and 2½	.....
¾ to 2 inches	25, 10 and 7½	.....
2½ to 8 inches	25 and 10	.....

On Iron Boiler Tubes the discounts are as follows: 1 to 1½ inch, inclusive, 20, 5 and 1 per cent.; 1¾ to 2¼ inch, inclusive, 20, 10 and 2½ per cent.; 2¾ to 8 inch, inclusive, 30, 10, 10. 10 and 1½ per cent.; 2½ and 9 to 13 inch, inclusive, 30, 10 and 4½ per cent.; Steel Boiler Tubes about 5 per cent. net less than Iron.

Coke.—Of the 20,071 ovens in the Connellsville region, 19,597 are in blast and only 474 idle, the output last week having been 216,205 tons. Both Furnace and Foundry Coke continue very scarce and difficult to get even at very high prices. We quote Furnace Coke at $3.50 to $4 a ton, and Foundry Coke at $4 to $4.50, the order, and the necessity of the buyer, largely determining the price of Coke at the present time.

We can state officially that the report that the Apollo Iron & Steel Company, Pittsburgh, Pa., would be taken over by the American Steel Sheet Company is untrue. That facts are that the Apollo Company have been asked to go into the American Steel Sheet Company, but owing to the absence of Geo. G. McMurtry, their president, in Europe, nothing definite has been done. Mr. McMurtry

will return to Pittsburgh about April 5, when the matter will be taken up and definitely settled. Just now it is uncertain whether Apollo will be included or not.

Cleveland.

CLEVELAND, March 20, 1900.

Iron Ore.—As predicted in this correspondence last week the conference between representatives of the Ore unloading dock interests and the officials of the labor organizations embracing the dock workers reached agreements on all points which are quite satisfactory to the Ore and vessel interests. The workmen stood out for a considerable time in their determination to reduce the working day from 12 to 10 hours, but finally conceded the point. The rate to vessels for unloading was fixed at 20c. per ton. The Ore unloaders are to receive 25c. per hour for overtime. The price for loading Ore from the dock by machine will be 8c. per ton; for loading Ore from the dock by hand, 10c. per ton; for transferring Ore from cars to docks, 20c. per ton; for trimming and pinching cars at Ashtabula, Ohio, and Erie, Pa., 16 2-3 per cent. over the close of last year; for the same work for other ports along the south shore of Lake Erie, 20c. per hour, and 25c. per hour for overtime; day work 20c. per hour and 25c. per hour for overtime. Last season endless trouble was occasioned by the Ore unloaders suspending work for picnics and other excursions. This year the holidays are to be limited to Memorial Day, Fourth of July, Labor Day and Thanksgiving Day. The men are not to work on Sunday unless the boat is in a wrecked condition. The engineers who operate the Ore hoisting and conveying machinery will receive $80 per month at all ports save Cleveland and Buffalo, where their pay is to be $85 per month. Overtime is to be calculated at 40c. per hour for engineers receiving $80, and 45c. for engineers receiving $85. Overtime for legal holidays and Sundays is to be 10c. an hour above that of ordinary working days. All other workmen on the Ore docks will receive an advance of 16 2-3 per cent. over last season. It is hazardous to predict regarding the opening of navigation. Indications are that it will be delayed somewhat, but a week of rain and warm weather will sometimes work wonders in breaking up ice. A few of the vessels are already being fitted out, and the work will commence on the large fleets about March 25. No "wild" rates have as yet been fixed, but some vessels have been chartered for the first trip from Escanaba at the going rate. Offerings of Ore tonnage will not be heavy at the outset, as a number of the vessels have been placed for one or two trips in the grain trade. There is still some Ore offering at ports at the head of Lake Superior, and during the past week some tonnage was tied up at the old rate of $1.25. The managers of the package freight lines of the lakes are now considering the question of how many of their vessels will go into the Ore trade. Unless package freight rates take an unexpected raise quite a number will be employed in this traffic. It is probable that a few vessels will be assigned to take care of the necessary package freight business, and that the remainder will be devoted to Ore carrying. There have of course been practically no sales of Ore during the past week.

Ore shippers now fear that grain shippers will have the call on all desirable "wild" boats, because of unloading charges. Total charge for trimming and unloading Ore will be 25c. per ton, or $1500 per trip for a 6000-ton boat, almost double that on a grain cargo of equal size. The Illinois Steel Company have secured a fleet of seven vessels to carry their Ore..

Pig Iron.—The market in Foundry Iron has opened after a fashion during the past week, but the predicted rush was wholly lacking and the general movement is far from active. There is little doubt but that this may be attributed in a great measure to the labor troubles at Chicago, and the fear that they will spread to this district. This has been emphasized by the general impression created by dispatches sent out from Chicago that should the movement become more general it would spread first to Cleveland. There have been few sales of Bessemer and those closed up have not been of any considerable volume. It is understood that the heavy inquiry from a Pittsburgh interest a week ago has not as yet been productive of any actual transaction. Some of the sales of Foundry grades for delivery during the remainder of the year have been at a slight shading from the quoted prices of $23 for No. 1 and $22.50 for No. 2, but for the most part these prices are well maintained. Ore is once more going forward freely to the furnaces from the docks on Lake Erie, and it is hoped that no more banking will be necessitated for lack of raw material. The Coke situation is even yet, however, far from satisfactory. This, however, is not an affliction which can be said to be general, inasmuch as a number of furnaces report a plentiful supply of fuel on hand. The situation in Lake Superior Charcoal is no easier.

Finished Material.—What has been said relative to the stagnating influence of the Chicago labor trouble upon the Pig Iron situation is doubly true of the situation in the Finished Material market. Such is the diversity of Cleveland's manufacturing interests in Iron lines that probably nothing save a general strike of machinists, such as is now threatened, could exert an influence general in effect. It is expected that somewhere in the neighborhood of 2000 machinists will be called out here, and some plants will be compelled to suspend operations entirely in consequence. The Cleveland manufacturers, however, organized last week as a branch of the National Metal Trades Association, and are preparing for a most vigorous fight. For all the discouraging influence noted the market is characterized by less hesitancy in Plates, Sheets, Bars and other lines. The largest buyers seem to have come to the conclusion that rock bottom has been reached and are acting accordingly. The business of the week included the closing of contracts for 1000 tons of Universal and Ship Plate. Billets are moving very freely at the old price. One prospective boat contract for a new Steel vessel for one of the railroad companies operating a line of lake steamers fell through last week when the firm were given estimates on material. Several fair sized orders were closed up for Rails, principally for connection work. A slight flurry has been caused by the withdrawal of prices on Sheets, but pending the issuance of a new list sales agents are selling out of stock at the old prices. Stock prices still hold for Pipe, also, but all mills have now adopted the National Tube Company scale, which fixes net prices instead of the old plan of discounts.

Old Material.—There is considerably more inquiry than some time ago, but to date it has not resulted in any material increase in transactions. There has been a particularly light demand for Wrought. The last sales made were at prices as follows: Steel Melting Stock, $22 gross; No. 1 Cast, $16 net; No. 1 Wrought, $20 net; Iron Rails, $25 gross; Car Wheels, $24 gross; Turnings, $13.50; Borings, $12. The supply is fully equal to the demand.

St. Louis (*By Telegraph.*)

Office of *The Iron Age*, 1205 Chemical Building, St. Louis, March 21, 1900.

Pig Iron.—The week has been uneventful and purchases made in small lots only. Inquiry is said to be increasing, and from many sources the call for delivery on old contracts is urgent. Some buyers cling to the idea that prices, in view of limited buying, are being held up by force, and other responsible concerns admit that furnace agents have made no effort to sell even at market. Continued inquiry fails to develop any tenders to foundrymen of Iron at off prices. Furnaces continue to say that it will be well on to the summer months before new deliveries can be made on Foundry grades. Also claim additional Basic is out of consideration for delivery this year. No serious abatement apparent in tonnage melted in this territory, but despite the drain on stock in yards and incoming shipments, it is a fact that consumers show no haste to cover future wants. We quote on cars, St. Louis:

Southern, No. 1 Foundry	$22.25 to $22.50
Southern, No. 2 Foundry	21.25 to 21.50
Southern, No. 3 Foundry	20.25 to 20.50
No. 1 Soft	22.25 to 22.50
No. 2 Soft	21.25 to 21.50
Gray Forge	20.00 to 20.25

Bars.—Carload business is only occasional and with present feeling on buyers' part it is not expected that any decided action will take place before April. Concerns heretofore buying heavy tonnage lots are known to take as needed out of jobbers' stocks, but their aggregate purchases are said to be undiminished. It might indicate that jobbers are enjoying business which formerly went direct to mills. Hoops and Bands are quoted at 2.70c., base, East St. Louis. Mill quotations on Iron remain at 2.35c., base, half extras, East St. Louis, in carload lots. No change has taken place in jobbers' prices, which are 2.75c. to 2.90c., base, full extras, as to quantity and assortment. Steel Bars are now definitely quoted by mills at 2.40c., base, half extras, in carload lots, East St. Louis. Jobbers' price is 3c., full extras.

Rails and Track Supplies.—Conditions same as last reported throughout entire line. We quote Splice Bars, Steel, 2.55c.; Iron, 2.55c.; Track Bolts, with Square Nuts, 3.60c.; with Hexagon Nuts, 3.80c.; Spikes, 2.75c.; Steel Links and Pins, 3.20c.

Pig Lead.—No snap whatever in the market. Trading of an indifferent order and 4.57½c. seems ruling price for any grade. Lead Ore fell back 25c. and sold at $27.25 per 1000 lbs.

Spelter.—No interest being taken in Spelter. Offerings at 4.40c., St. Louis, lost the orders, which were placed with other parties, but successful price not known. Exporters bid to-day at basis of 4.30c., St. Louis, but not accepted. Otherwise there is practically no inquiry. $82 was the top price for Zinc Ore with the exception of a small batch, which brought 50c. advance.

Cincinnati. (*By Telegraph*)

Office of *The Iron Age*, Fifth and Main streets,
CINCINNATI, March 21, 1900.

The amount of Pig Iron sold by Cincinnati agencies during the past week has been nothing to attract attention one way or the other. There have been but few trades involving 500 tons of either Southern or Northern Iron. The number of smaller orders has been somewhat greater, and the business has been representative in a wider degree of all classes of buyers. A few cases are cited where consumers have asked for deliveries to be held back. The number, however, who are urgent for prompt shipment does not appear to be materially lessened, and on the whole there is no apparent change in the situation from that point of view. No one here seems to look for a much brisker condition within the next week, though there is perhaps a perceptible increase in the number of inquiries. The market, in the absence of anything like a test, remains unchanged, with the actual trading much nearer the minimum than the maximum figures. The outside figures are only representative in that they stand in a retail way for prompt shipment lots of special Irons and the views of some furnaces who find themselves in a pretty independent position. The general situation is regarded on the whole as still strong. Freight rate from Hanging Rock district to Cincinnati is $1. We quote, f.o.b. Cincinnati:

Southern Coke, No. 1	$21.25 to $21.75
Southern Coke, No. 2	20.25 to 20.75
Southern Coke, No. 3	19.25 to 19.75
Southern Coke, No. 4	18.50 to 19.25
Southern Coke, No. 1 Soft	21.25 to 21.75
Southern Coke, No. 2 Soft	20.25 to 20.75
Southern Coke, Gray Forge	18.25 to 18.75
Southern Coke, Mottled	18.25 to 18.75
Ohio Silvery, No. 1	29.00 to 30.00
Ohio Silvery, No 2	28.00 to 29.00
Lake Superior Coke, No. 1	23.00 to 23.50
Lake Superior Coke, No. 2	22.00 to 23.50
Lake Superior Coke, No. 3	21.00 to 21.50

Car Wheel and Malleable Irons.

Standard Southern Car Wheel, Chilling Grades	$25.25 to $26.25
Standard Southern Car Wheel, No. 2	24.75 to 25.25
Lake Superior Car Wheel and Malleable	25.50 to 26.50

Plates and Bars.—Bar Iron has been a little more active, and Sheets in turn are quieter. On the whole the market averages unchanged, both as to tone and as to prices. We quote, f.o.b. Cincinnati: Iron Bars, carload lots, 2.28c., with half extras; small lots, 2.60c., with full extras; Bar Steel, in car lots, 2.50c., with half extras; small lots, 2.95c., with full extras; Iron Bar Angles, 1½ x 3-16 inch and larger, in car lots, 2.55c.; small lots, 2.80c.; Sheets, No. 10, 2.80c.; No. 27, Stove Pipe, 3.25c.; No. 27, Steel, 3.35c.; Plates, 2.75c. to 3c.

Old Material.—The market has been very dull, and shows a tendency to weakness. We quote dealers' buying prices, f.o.b. Cincinnati, as follows: No. 1 Wrought Railroad Scrap, $19 per net ton; Cast Railroad Scrap, $12 per gross ton; Cast Machine Scrap, $13 per gross ton; Axles, $24 per net ton; Iron Rails, $21.50 to $22 per gross ton; Car Wheels, $22 per gross ton.

Structural Material.—Beams and Channels, 15-inch and under, 2.40c. to 2.45c.; over 15-inch, 2.50c. to 2.55c.; Flat Bars, 2.40c. to 2.45c.; Tees, 3-inch and larger, 2.45c. to 2.50c.; Stock Beams, 2.85c. to 3c., all f.o.b. Cincinnati.

Birmingham.

BIRMINGHAM, ALA., March 19, 1900.

There is very little change in the market. Some interests report an increased inquiry, while others state affairs are rather quiet. Judging conditions from actual transactions one can only say that it is steady and quiet. But there is a good deal of knocking at the door in the way of inquiry. Buyers are still after nearby deliveries, and when they can be had, current values are not disputed. But these nearby deliveries are becoming more and more difficult to obtain. There were concessions made in some cases on the lower grades of Iron, and Mottled Iron went at $15.75. There were one or two cases reported at $15.50. But these prices were not general. The better grades were, as far as can be ascertained, more firmly held, and the market is still quoted on the basis of $17.50 for No. 2 Foundry. The recent sales of Basic Iron have aroused some curiosity as to price obtained, but all efforts to ascertain it proved futile. It is reported, however, to have been, approximately, the price of No. 2 Foundry. For the past ten days not a day has elapsed that cables have not been received inquiring for Iron. So far the business resulting has been nominal. But the continuous inquiry is taken as evidence that stocks in European hands are approaching a low ebb and must be replaced from some source. There seems to be but little prospect of much, if any, business from that source for some time, as freights have stiffened.

At the Steel mill heat has been turned on three more furnaces and this week there will be six furnaces producing Steel, instead of three. In a short time the entire battery of ten furnaces will be at work. Each day adds to the smoothness of working and efficiency of results. The Rod and Wire mill is making progress, and only a trifle of time now intervenes before that will be going at full tilt. The Steel mill has sold a few small lots of late. Among the sales was one for 2000 tons of Axle Blooms. The price obtained is withheld.

The Tennessee Company blew in on Saturday the furnace at Oxmoor which for some time past has been undergoing repairs. The action of the Board of Directors of this company in declaring a dividend of 2 per cent. has infused fresh confidence in their future and it is considered as marking a new epoch in their fortunes. This is the first dividend declared since 1887, and it is taken as evidence that it will be hereafter a regular dividend payer. Never in their history have they been on such a sound basis as now and the prospects have never been so bright. The Sloss Iron & Steel Company also declared a quarterly dividend of 1¾ per cent. These dividends are what inspire confidence in the district and they are a help to all the other industries.

Mention was made some time ago of the establishment of a large Plow factory here. From good authority it is learned that negotiations are about concluded and they will be secured. They will manufacture such Plows as are adapted to the needs of Southern agriculture and will extend operations to Cuba, Central America and Mexico.

President Baxter says in his annual report that negotiations are progressing for the location of factories at Emsley City to make Cotton Ties, Hoops, Steel Tubes, Tin Plate and other products. The amount of capital now invested at Emsley City proper for manufacturing amounts to $7,500,000. Including contiguous territory and all of it in sight of Emsley City, it is $10,000,000. The place is growing at a marvelous rate. The largest lumber firm there said to your correspondent: "In 48 hours from the time the tree is cut in the forest it is in some shape in a house being erected here." Everybody is on the go. Everything is on the jump. As the time approaches for work to be inaugurated in the different departments the great lack of accommodations is more and more manifest. There is not only not a vacant house in the place, but tenants could be found within a week for 500 houses. This illustrates clearly the activity that prevails at Emsley.

The Woodward Iron Company closed a contract last week with the Birmingham Machine & Foundry Company for a large blowing engine, said to be the largest in the district. This kind of work has only lately been undertaken by this company, and marks the strides we are making in the march of progress. In the way of building the firm of the Milner-Kettig Company will commence in May the erection of a four-story iron, stone and brick business house specially adapted to heavy machinery and hardware business.

Our hardware firms have had a new competitor added for business in that of the Echols-Smith Hardware Company. Then a large Nashville wholesale dry goods firm will open an independent house here. So we are not only prospering from our varied industries, but are adding to other lines of business.

The firms dealing in Machinery still report a fine business. One is installing the largest mining outfit in the district and another obtained the contract to instal the Machinery for the addition to the Electric Power Plant.

The situation as to Coal and Coke has not improved a particle. It appears that if our present output was twice the amount it is we would find a ready market for every pound of it. Although it has increased by leaps and bounds, the demand has led it. New sources are constantly appearing and asking to be supplied, while the local demand, because of our new industries, has largely increased. The securing of the necessary labor to supply increasing demands is a grave problem confronting the interests involved.

The British Iron Market.

The Iron and Steel trades throughout the country maintain a strong tone all round, and the amount of business now being booked in the finished branches is fully equal to the contracts which are running out. Indeed, some of the recent orders taken by makers are said to be heavier than any previously given out this year.

Pig Iron.—The market is still rather quiet in Glasgow and Middlesbrough, although there is a distinct improvement to be noted in the amount of business doing. Both warrant and makers' prices have become stronger during the past week, and this upward movement, far from acting as a deterrent, seems to have stimulated the demand, and a large proportion of inquiries have resulted in business, consumers having apparently become convinced that no set-back in prices can occur now that the dullest part of the year is practically over, and being anxious to place their orders before further advances take place. The position of makers remains very strong all round, and, indeed, their prospects are improving. The only weak point in the situation is the receipt of less favorable news from the United States, and increased American competition is apparently expected in some quarters. No. 3 Cleveland is still at 70 shillings, and on Tuesday an improvement brought all the prices up to the same level. Notwithstanding that Cleveland Warrants have kept at higher figures than Scotch during the week, there have been fair shipments to Scotland. Hematite is still in very meager supply, and rates continue to rule high, mixed numbers being unobtainable under 80 shillings. In Barrow somewhat similar conditions prevail. The demand is very strong and makers are behindhand with their deliveries, while it is impossible to deal with all the new orders pouring in. Mixed numbers are quoted up to 82 shillings. There is a very active inquiry for Pig in South Staffordshire, especially from forge owners, who are very large consumers just now. In Lancashire buyers are operating cautiously, and although there is rather more business doing, it is still comparatively insignificant.

Manufactured Iron and Steel.—Activity continues throughout the finished branches of the Iron and Steel trades, and a heavy business is being done all over the country. Prices show but little change on the whole; but there are again some small advances in Middlesbrough, Steel Engineering Angles being now at £8 10s. to £8 12s. 6d, and other slight changes in an upward direction have taken place. In Lancashire, although there is no official advance, makers are quoting higher rates, and holding out for 5 shillings per ton above list prices, £10 5s. to £10 10s. being asked for Bars. All the mills and forges are well employed, and in many cases the orders already booked extend into next quarter. South Staffordshire houses are doing a good trade with Australia, and with India and South America a fair business of a cheaper kind is passing, while the whole consumption is large. Puddled Bars have been advanced to £7 10s. Steel makers are busy, and there is a particularly good inquiry for Plates, Channels and Bars. The output of all kinds of material is large, but it is readily absorbed.

Engineering and Shipbuilding.—Both the engineering and shipbuilding industries continue well employed. As regards engineering, although activity still prevails generally, it is reported by some firms that the exceptional position which characterized all branches of industry at the commencement of the year is hardly maintained. Here and there new orders are coming forward in sufficient quantity to replace work that is being completed. Builders of heavy stationary engines, and some departments of the textile machine trades are reported to be experiencing this slackening, while there is, perhaps, not quite so much constructive engineering work given out. The position, however, taking it all through, continues one of full employment for some time to come. Locomotive builders have recently secured large new orders, and the principal machine tool makers are also securing a sufficiency of new work.

Comparison of Prices.—The annexed table shows the current prices compared with those of last week, and of the corresponding period last year:

	March 8, 1900.	March 1, 1900.	March 9, 1899.
Iron Ore—	s. d.	s. d.	s. d.
Rubio, Middlesbrough	21 6	21 6	15 6
Rubio, Cardiff	20 0	20 0	14 3
Pottery Mine, North Staffordshire	17 6	17 6	14 6
Hematite, West Coast (at mines)	17 6	17 6	14 0
Pig Iron—			
No. 3 Foundry, Middlesbrough	70 0	69 9	48 0
Warrants, Middlesbrough	69 9	68 9	47 6
Scotch Warrants, Glasgow	69 3	68 1	54 6½
Hematite Warrants, West Coast	78 5	77 2	58 6
Cold Blast (Foundry), South Staffordshire	130 0	130 0	100 0
Welsh Hematite, Cardiff	85 0	85 0	61 0

Manufactured Iron and Steel—	£.	s. d.	£	s. d.	£.	s. d.
Marked Bars, South Staffordshire	11	10 0	11	10 0	8	0 0
Common Bars, South Staffordshire	10	10 0	10	10 0	6	15 0
Steel Rails, Middlesbrough	7	7 6	7	7 6	4	15 0
Steel Rails, West Coast	7	0 0	7	0 0	4	12 6
Steel Rails, Cardiff	7	5 0	7	5 0	4	17 6
Steel Angles (eng.), Middlesbrough	8	12 6	8	10 0	6	17 6
Steel Angles (eng.), Glasgow	8	5 0	8	5 0	7	0 0
Steel Plates (ship), Middlesbrough	8	5 0	8	5 0	7	2 6
Steel Plates (ship), Glasgow	8	10 0	8	10 0	7	2 6

Tin Plates, Bessemer IC. Cokes, South Wales	s. d.	s. d.	s. d.
	16 6	16 0	11 6

—The Iron and Coal Trades Review, London, March 9.

New York.

Office of *The Iron Age*, 232-238 William street, New York, March 21, 1900.

Pig Iron.—Inquiries are numerous, and transactions are somewhat larger than reported last week. The most important was a sale of 8000 tons of Bessemer Pig, for delivery during next quarter, which was made at the full market price. The purchasers desired to increase the quantity, but the producers were not willing to enter into a larger engagement. Some good sized lots of Foundry Pig Iron were also purchased, but the great majority of transactions consisted of small lots to meet the immediate necessities of consumers. The market continues quite firm on the higher grades of Foundry Iron, but some accumulation is reported of No. 2 Plain Foundry, and quotations given below may be shaded. Prices are as follows: Lehigh and Schuylkill Irons, No. 1 Foundry, $23.50 to $24; No. 2 X, $22.50 to $22.75; No. 2 Plain, $21.50 to $22; Gray Forge, $18.50 to $19.25. Southern brands are quoted as follows: No. 1 Foundry, $22.75 to $23; No. 2 Foundry, $21.50 to $22; No. 1 Soft, $22.75 to $23; No. 2 Soft, $21.50 to $22; No. 3 Foundry, $21.25 to $21.75; Gray Forge, $19.25 to $20.25.

Cast Iron Pipe.—The only matters of importance now coming up are the letting this week, at Worcester, Mass., of about 2100 gross tons, and at Lebanon, Pa., of 1000 tons. Trade is still backward throughout the northern section of the country. Quotations are maintained at $28 to $29 per gross ton for 8-inch Pipe at tidewater.

Steel Rails.—While the inquiry continues, and it is expected that considerable business will shortly develop, the transactions of the past week have been light. Quotations are continued at $35, at mill, in Eastern Pennsylvania, for Standard Sections. Angle Bars are held at 2.25c. to 2.35c.; Spikes, 2.60c. to 2.75c.

Finished Iron and Steel.—Nothing new has developed in Structural Material during the week. Some projects of importance are in sight, but have not yet assumed definite shape. A good volume of business is progressing in ordinary quantities of Structural Material, and the mills are well filled with work. Plates are in somewhat better demand, but competition for business is keen with some of the Eastern mills, and prices show some recession. We quote: Beams, 2.40c. to 2.50c.; Angles, 2.40c. to 2.45c.; Universal Mill Plates, 2.50c. to 2.60c.; Tees, 2.40c. to 2.45c.; Channels, 2.40c. to 2.50c.; Steel Plates are 2.15c. to 2.35c. for Tank, 2.25c. to 2.45c. for Shell, 2.50c. to 2.75c. for Flange, 3c. to 3.10c. for Fire Box, and 3.50c. to 4c. for Locomotive Fire Box, on dock. Charcoal Iron Plates are held at 3c. for C. H. No. 1, 3.50c. for Flange, and 4c. for Fire Box. Refined Bars are 2.15c. to 2.25c., and Common Bars, 2c. to 2.10c., on dock. Soft Steel Bars, 2.40c. to 2.45c., and Hoops, 2.70c. to 2.75c., base delivery.

John V. Gibbons & Brother, 133 Greenwich street, New York, announce that to meet the demands of their increasing trade and to enable them to carry a more extensive stock of Pipe, Fittings, Valves and general mill and factory supplies, they have leased the entire building, 178 Washington street, to which they will remove on or about April 1. The business of this firm has rapidly grown since they established themselves in their first location, at 122 Liberty street, in 1893.

Metal Market

Office of *The Iron Age*, 232-238 William street, New York, March 21, 1900.

Pig Tin.—During the week under review the market has shown a declining tendency. In London the declines were heavy, but toward the close of the week there was a slight recuperation. This market closed quiet to-day at 31.85c. to 32c. for spot, 31¼c. to 31½c. for March, and 31c. for April. Business has not been active. The London market dropped £7 10s. between the close of last Friday and the opening on Monday last. The reaction of yesterday and to-day make the total decline £3 10s., however, the market closing to-day £137 for spot and £135 10s. for three months' futures. It is said that the heavy decline of London prices between Friday and Monday

was due to a report to the effect that the Dutch Trading Company would further increase their sales during this year by about 2000 tons. We are unable to confirm this rumor, however, and the opinion of the trade now seems to discredit the report entirely.

Copper—Has steadily continued in its upward march and no quotations can be secured to-day lower than 16½c. for spot Lake. Official quotations given by the New York Metal Exchange are 16½c. for spot Lake, an advance of ⅛c. per pound over their figures of a week ago. The closest quotation obtainable on Electrolytic Cakes, Wire Bars and Ingots is 16⅜c., and this figure also holds good for Casting stock. Certain parties in the trade quote as high as 16¾c. to 16⅞c. for spot Lake and 16⅝c. to 16¾c. for Electrolytic and Casting. Inquiries are said to extend as far into the future as September. Business is reported fairly active. The London market was steady to firm throughout the week, and closed to-day £78 5s. for spot and £75 10s. for three months' futures. These figures mark an advance of just £3 above the figures cabled last week. Best Selected has advanced 10 shillings, and comes to-day £79 flat. Exports from this side continue on a large scale, and all indications point toward a heavy total for this month.

Pig Lead.—There is no change whatever, the condition approaching one of stagnation. The American Smelting & Refining Company still quote 4.70c. to 4.75c. for spot and futures. London has fallen off a shade and cables to-day say that £16 12s. 6d. is the figure.

Spelter—Is still weak, and offers are made in spot to May at 4.60c. The bidding element do not incline to go above 4.50c., however, and consumers are straggling along, buying only according to their absolute necessities. London had declined in an easy fashion, reaching its lowest point for the week at the close to-day with £21 3s. 9d. for spot. This is a decline of over half a pound as compared with the quotation of last week. The extensive export business continues, and it is said that the London decline is largely accounted for by the heavy shipments from this side.

Antimony.—There is no change. Hallett's is quoted 9¼c., and Cookson's remains firm at 10½c. to 11c.

Nickel—Continues firm and unchanged. The price for wholesale lots is still 38c. and retail lots are quoted as high as 50c.

Quicksilver.—Wholesale lots of 100 flasks and more are quoted at $51 per flask of 76½ lbs. The London market remains stationary at £9 12s. 6d. for Rothschild's and the usual 1s. 3d. lower for second hand.

Tin Plates.—Prices remain unchanged and a good demand continues. The American Tin Plate Company are now quoting for the third quarter and their prices are said to be on a basis of $4.84 per box of Standard 100-lb. cokes, New York delivery, or $4.65 f.o.b. mill.

At the annual meeting of the New York Metal Exchange held yesterday afternoon the report of the secretary showed that the institution is still in a flourishing condition.

The New York Machinery Market.

Office of *The Iron Age*, 232-238 William street,
New York, March 21, 1900.

An improvement in the tone of the market is noticeable. Inquiry is evidently more active, and work which has hung fire for some time is being closed. There are a few fairly heavy inquiries which will soon be decided upon. Foreign business is coming in better volume, and the entire situation is more cheerful. Prices remain very firm and unchanged. Deliveries have eased up somewhat on the general run of machine tools and far distant deliveries are named only on the special high class tools. Such tools cannot be obtained in certain instances for several months. For example, we are informed that a certain make of high class grinders cannot be obtained before next October. This condition is largely brought about through the fact that the manufacturers build them in very large lots. Considerable time is required in putting through an entire lot, and while the work on the machines is progressing orders are accumulating so fast that in some cases the machines are all sent out as soon as completed. Immediately after a lot has been sold the next delivery obtainable is of course far in the future. We hear of one concern who are putting their new machines through in groups of fifties, and each operation is completed on all of the 50 machines before the next operation is commenced. This method of putting work through the shops is certainly a great step toward economy in production, and is not a new feature in machine tool building, but the almost universal extent of its adoption brings out the supply in a rather intermittent manner.

Business in second-hand tools is excellent. There is a great demand for refitted or overhauled second-hand machinery, and merchants show an equal disposition toward acquiring old tools and putting them in shape for resale. The latter fact was instanced recently by the activity which the large New York machinery merchants displayed in bidding for the equipment of a shop which was to be dismantled.

During the early portion of this week just a little apprehension was felt in the trade regarding the machinists' strike. Reports that it would spread across the entire country caused the machinery dealers to seek information from the manufacturers. It is now believed that all danger of a universal strike is over. Thus far the only city in the East which has been effected is Paterson, N. J. Here we understand the trouble is well nigh an end, because the Machinists' Union are not very prompt in paying the strikers the small allowance which they were to receive while "out." The lack of financial strength throughout the entire union is looked upon as a great barrier which the machinists have encountered. Furthermore, of the 100,000 machinists which the union promised to put out on strike it has been ascertained that only 40 per cent. are members of the union. The odds are much in favor of the employers. The work of the defense federations of the employers has also done much to discount the talk of the labor agitators. Such organizations have sprung into existence with remarkable rapidity, and the level headed workingmen are beginning to see the uselessness of fighting against the concerted action of their employers. The consensus of opinion among machinery men is that the Western strikers will soon be forced to submit, and that with their defeat the entire affair will die out.

The attention of many parties in the trade has been attracted by the recent ups and downs of the Third Avenue Railroad Company. This is accounted for by the fact that the company recently awarded contracts for the building of a mammoth new power station. None of the material has as yet been delivered, and the question which presented itself to the holders of the contracts is whether the company would continue with the project. When the controlling interest was acquired by the Metropolitan Traction interests the announcement was made that the power station plans would be abandoned, as the Metropolitan Company would be able to furnish sufficient power to operate all lines now under their control. We are informed by parties who are in an excellent position to know just how things are going, however, that there is no likelihood of a stoppage of the work, and these parties state that the station will be built as originally intended. Negotiations are approaching successful culmination for the establishment of a very large forging plant in this section of the country. We are informed that the new company will be capitalized at $5,000,000, and that $2,000,000 will be expended in the erection of the plant. The financial end of the deal is practically completed. Several men who are very prominent in iron and steel circles are connected with the project.

There is a report current to the effect that extensive additions will be built to the plants of the Pond Machine Tool Works, Plainfield, N. J. It is said that both foundry and machine shop will be enlarged.

Probably the largest single inquiry which went the rounds this week was from the Payne Engineering Company. This company are looking for upward of $50,000 worth of machine tools. The machinery is to be used in equipping a new factory which will replace the one recently destroyed by fire. The old plant was located at Elmira, N. Y. The New York offices of the company are at 120 Liberty street. The purchasing is pending the result of the work of insurance adjusters.

The Westinghouse Electric Mfg. Company have purchased about $25,000 worth of miscellaneous machine tools within the last few days. The tools will be installed in the company's Newark, N. J., works. This plant is located corner of Plane and Orange streets, and is devoted to the manufacture of electric lamps and small work. This is the old plant of the United States Electric Company.

The Chicago Pneumatic Tool Company, whose New York offices are at 120 Liberty street, will soon be in the market for a quantity of machine tools. These tools will be required for equipping a factory which they hove acquired at Olney, near Germantown, Pa. The new plant will be known as the Philadelphia works of the Chicago Pneumatic Tool Company. The buildings, which will be refitted for the manufacture of pneumatic tools, formerly constituted a copper smelting plant and rolling mill. The Chicago Company have purchased the National Pneumatic Tool Company of Philadelphia and the Whillam Tool Works of St. Louis.

The United States Projectile Company of Brooklyn, N. Y., are adding to their plant. They are in the market for heavy special machinery.

We are informed that the Ingersoll-Sergeant Drill Company have been awarded the contract for the two large air compressors which are to be placed in the Brooklyn Navy Yard. These compressors are of about 900 feet capacity per minute each. They are to have Corliss engine ends. The price for both machines is said to be $13,320.

The Link-Belt Engineering Company have just closed a contract with the Lackawanna Railroad for a coal storage plant to have 100,000 tons capacity. The plant is to be erected at Scranton, Pa. The Dodge system of storing coal will be installed.

The International Land & Exhibition Company, Bowling Green Building, are now handling the ferro-nickel manganese calcium fluoride production of the National Ore & Reduction Company. This substance is a chemical composition which absorbs carbon and detrimental gases from molten iron, copper or brass, making the metal more fluid and free from sponginess and air holes. Ferro-nickel manganese is free from phosphorus, sulphur and carbon, and has a very low melting point. Of this material the producers say: "The properties of nickel manganese when it is combined with iron, steel or copper are to increase largely their tensile strength and their resistance to oxidation. It also increases their fluidity under heat, giving cleaner and sounder castings; and to produce these results a surprisingly small admixture is necessary. Alloyed with brass or copper it improves alike its tensile strength, its color and durability, and gives a dense, solid casting, free from porosity. The difficulty in the use of aluminum, or of alloys of aluminum, is to obtain a perfect mixture of the grades of iron. Ferro-nickel manganese flux gives more perfect castings, purifying the metal, and making a clearer and more complete separation of the slag and impurities than by any other known process. An amount of the flux from ½ to 1 per cent. only is required to effect the above results. As an admixture with copper a gain of tensile strength of 50 and more per cent. is made by the addition of only 1 per cent. of the flux, and the metal casts perfectly solid and free from air holes." The International Land & Exhibition Company issue a circular showing that the substance has been supplied to all the United States navy yards, and many of the largest railroads and manufacturing concerns throughout the country. Samples are sent by the company.

The Buffalo Forge Company have sold a high speed engine direct connected to a generator of the Northern Engineering Company to the George F. Ibert Brewing Company, Brooklyn, N. Y.

Orders for complete outfits of power transmitting machinery were awarded to the A. & F. Brown Company of 26 Cortlandt street by the Capewell Horse Nail Company of Hartford, Conn., and the Gera Mills of Passaic, N. J.

H. H. Jackson, manufacturers' agent and commission merchant in iron and steel, has removed to 29 Broadway.

The Philadelphia Machinery Market.

Office of *The Iron Age*, Forrest Building,
PHILADELPHIA, PA., March 20, 1900.

As a whole, the condition of the local machinery market remains unchanged since our last report. Small buyers are less in evidence than they were a few weeks back, and inquiries are not as numerous, but still there is hardly a perceptible decrease in the volume of business.

Orders now being booked are, for the most part, from substantial concerns who are either making additions to their plants or are re-equipping; and the same can be said of inquiries being received. They are, as a rule, from established houses, whereas for some time past many inquiries have been received for machine tools and equipment for fitting up enterprises that existed largely on paper—proposed plants—which in many cases have never lived beyond the embryo state.

The trade in general complain of difficulties in making collections, in fact there are well to do concerns who have found it necessary to borrow sufficient money to cover current expenses until such time as they were enabled to secure settlement for goods sold.

Prices for raw materials rule slightly higher than a month ago, and the general opinion is that they are liable to increase rather than decrease for some time to come. Some few concerns are buying material at present prices for future delivery, while others think it best to buy only what is required for immediate use, trusting to secure a lower price on future needs. Coal prices still rule high, with a possibility of a further advance.

The proposed strike of machinists is creating an uneasy feeling in some cases, and if a strike is ordered the blame, according to the opinion of a prominent machine tool manufacturer, can be safely laid to the immense combinations that have been effected of late. It is hoped that the difficulties between the machinists and their employers will be settled in an amicable manner.

Some interest is manifested in the sale of the Hillman shipyards, which takes place on the 22d inst. This property is well situated for shipbuilding purposes, and it is probable that well-known financial men will be represented at the sale, with a view of putting the yards in active operation.

Lucas & Gliem have increased their capacity by 3800 square feet during the past month, and yet find it necessary to work a night force in order to make headway on orders in hand. Twenty-one boring machines are now under course of construction by this firm. Among their March shipments are included two cold saw cutting off machines and milling machines and grinder to the C. Pardee Works, Perth Amboy, N. J.; two milling machines to the Avery Mfg. Company, Peoria, Ill., and one cold saw cutting off machine to Fabrique D'Essenx de Marchiene Zone Company, Brussels, Belgium.

The Stow Flexible Shaft Company report many inquiries and orders, both foreign and domestic, for their electric portable drills. Two of these drills will be shipped to Russia within the coming week.

The J. W. Paxson Company state that they are very busy. March shipments of this concern will include among others two molding machines to Kuyling & Thomas, Berlin, Germany, and a complete foundry equipment for a Moscow, Russia, plant. This firm are also bidding on foundry equipment for Milan, Italy.

The volume of business at the Baldwin Locomotive Works is tremendous, it being doubtful if the works were ever so busy. The Baltimore & Ohio Railroad Company have just placed an order for 100 locomotives of the consolidation type. It is but a short time since the Baldwins finished delivery to the Baltimore & Ohio of an order for 65 locomotives of the same type, which, together with their present order, makes a total of 165 engines contracted for by the Baltimore & Ohio Railroad Company from the Baldwin Works. The Union Pacific Railroad Company have also placed an order for 60 locomotives of the same type as those ordered by the Baltimore & Ohio Railroad.

Nazel & Bassett have received an order for an additional lot of 500 cigar vending machines from a New York City concern, for whom they got out a lot of similar machines in January last. After extensive preparations this firm are prepared to manufacture air hoists up to 5-ton capacity, and they are also doing considerable raw hide and spur gear cutting.

The Philadelphia Machine Tool Company have under course of construction five special presses. This firm report a fair number of foreign inquiries.

Geo. V. Cresson Company report as among March shipments set of crushing machinery to Carteret Steel Company, Carteret, N. J.; several shafting outfits to Mexican concerns, and vertical shafting to Naulde & Horst Company, Reading, Pa. They are now working on large orders of shafting for a large concern in Chicago.

Alfred Box & Co. report a very busy condition with excellent prospects for a continuance of same. The triple expansion engines being built for the torpedo boats "Nichalson" and "O'Brien" are almost completed. Several orders are booked for their new pattern, three-motor, electric traveling cranes. Other orders booked are a 25-ton electric traveling crane, one 5-ton three-motor electric traveling crane, and one 5-ton three-motor jib crane for the Pennsylvania Steel Casting & Machine Company, Chester, Pa. One 25-ton electric traveling crane is also under way for the foundry of R. S. Newbold & Son, Norristown, Pa. Hand traveling cranes are also under way for Morse, Williams & Co., Philadelphia, as are hammer cranes for the Tioga Steel Forge Works, Germantown Junction, Pa., and the new plant of the Philadelphia Forge Company, at Tacony, Pa. In addition to the foregoing large orders for ammunition trolleys for the battle ship "Wisconsin" have been received from the Union Iron Works, San Francisco. Box & Co. are also supplying the ammunition trolleys for the Russian cruiser "Variag," now nearing completion at Cramps' shipyard, and also for the Russian battle ship now building at Cramps' and known as "Hull 300."

The Pennsylvania Machinery Company have secured the contract for installing a complete laundry plant for the Philadelphia Toilet & Supply Company. It is asserted that when completed this will be the finest and most expensive laundry plant in Philadelphia.

The Champion Blower & Forge Company of Lancaster, Pa., report a greatly increased volume of business, it being fully one-third larger this year than it was in the corresponding period of 1899. They state the demand for their new line of steel forges is enormous.

The Philadelphia & Reading Railway Company are building extensive car and locomotive shops, and are fitting them with all the most modern appliances. The Phœnix Iron Company are furnishing the structural material for the buildings, which will require about 3000 tons to complete the buildings.

QUOTATIONS OF IRON STOCKS DURING THE WEEK ENDING MARCH 21, 1900.

Cap'l Issued.		Sales.	Thursday.	Friday.	Saturday.	Monday.	Tuesday.	Wednesday.
$29,000,000	Am. Car & Foundry, Common...	6,853	15⅞-16¼	16 -16½	16¾-17	16½-16¾	16½-16¾	-16½
29,000,000	Am. Car & F'y, Pref. (7 % Non-Cu.).	4,338	64 -64½	64¾-65	64¾-65¼	65 -65⅛	64⅞-65¼	65 -65¼
19,000,000	Am. Steel Hoop, Common..	13,415	33½-35½	33⅞-35	35 -35¼	35 -36	34 -35½	34⅛-35¼
14,000,000	Am. Steel Hoop, Pref. (7 % Cu.)...	700	.....	-80⅝	.....	-81	81¼-82	....
50,000,000	Am. S. & W., Common.....	36,640	55½-56⅝	55¾-56⅜	56¼-57	54⅛-55⅝	54 -55⅞	54⅞-56¼
40,000,000	Am. S. & W., Pref. (7 % Cu.).....	26,221	-91½	-91⅝	91¾-92	-90¼	-90¼	-90¼
28,000,000	Am. Tin Plate, Common, N. Y....	5,535	33 -33⅝	33⅛-33¼	33⅜-33½	33⅜-34	33⅜-33¾	33½-33¾
18,000,000	Am. Tin Plate, Pref., N. Y. (7 % Cu.)	275	-82	.....	.....	.....	-82	.....
7,500,000	Bethlehem Iron†.....	.....	.....	.....	.....	.....	.....	.....
15,000,000	Beth. Steel, Par $50, $1 paid in....	433	-17	-18	17 -17¼	.....	17¼-17¾	-17¾
7,974,550	Cambria Iron, Phila*.....	1,634	-44¾	.....	.....	.....	....	-43¾
16,000,000	Cambria Steel**.....	2,160	20¼-20⅜	-20	....	20⅜-20⅝	.....	20⅞-21½
11,000,000	Col. Fuel and Iron.....	6,885	-44¼	43 -43¾	44 -45	44⅝-45⅝	44¾-45⅛	44⅝-45⅜
46,484,300	Federal Steel, Common	33,505	49¼-50½	49½-50	50 -50½	49⅞-50⅞	50 -51	50¾-52⅜
53,253,500	Federal Steel, Pref. (6 % Non-Cu.).	4,255	73 -73½	-73½	....	73¾-74	74 -74½	74½-75½
32,000,000	National Steel, Common, N. Y....	22,290	44⅜-45	44¼-45¼	45⅛-46	44½-47¼	44 -46	41¾-44
27,000,000	Nat'l Steel, Pref., N. Y. (7 % Cu.).	3,030	-97	-95½‡	.....	.. ..	93¾-97	96 -96¾
5,000,000	Penna., Common, Phila.....	100	.....	.....	.....	.....	.....	-80
1,500,000	Penna., Pref., Phila.....	4	.....	.....	.....	-90	....	.....
12,500,000	Pressed Steel, Common.....	760	.....	-52¾	.....	.....	53¼-54½	.....
12,500,000	Pressed Steel, Pref. (7 % Non-Cu.).	700	.....	.....	.....	.....	85 -85½	.....
27,352,000	Republic Iron & Steel, Common..	3,700	21⅜-22	-21¾	21¾-22	21⅝-22¾	21½-21⅝	21½-22½
20,852,000	Repub. Iron & Steel, Pref. (7 % Cu.).	785	66 -66¼	66¼-66½	-66¼	.....	.....	-66
20,000,000	Tennessee Coal and Iron.....	21,995	92¼-93¼	92¼-92½	94¼-96¾	93¼-96¾	93½-96	94 -95⅜
1,500,000	Warwick Iron & Steel (par $10)...	225	.....	.....	.....	.....	- 9⅞	-10

* Par $50. ** $4.50 per share paid in. † 6% guaranteed by Beth. Steel Co. Late Philadelphia sales by telegraph. ‡ Ex-dividend.

Bonded Indebtedness: Am. S. & W., $130,656; Am. Tin.Plate, none; Am. Steel Hoop, none; Cambria Iron Co., $2,000,000 6 % debenture 20-year bonds, 1917, payable option 5 years, assumed by Cambria Steel Co.; Federal Steel Co., $13,200,000 Illinois 5 %, $7,417,000 E. J. E. R. R. 5 %, $1,600,000 Johnson 6 %, $6,732,000 D & I R. R. R. 5 %, $1,000,000 2d D. & I. R. R. R. 6 %, $10,000 land grant D. & I. R. R. R. 5 %; National Steel, $2,561,000 6 %; Tennessee C., I. & R. R. Co., $8,367,000 6 %, $1,114,000 7 %, $1,000,000 7 % cu. pref.; Pennsylvania Steel, $1,000,000 5 %, Steelton, 1st, 1917, $2,000,000 5 %; Sparrow's Point, 1st, 1922, $4,000,000, consolidated, both plants; Bethlehem Iron, $1,351,000 5 % maturing 1907. Interest and principal guaranteed by Bethlehem Steel Co. Republic Iron & Steel, none; Warwick Iron & Steel, none; Colorado Fuel & Iron Co.; Col. Fuel Co. Gen. Mort. 6 % $880,000, Col. Coal & Iron Con. Mort. 6 % $2,810,000, Col. Fuel & Iron Gen. Mort. 5 % $2,303,000. Also outstanding $2,000,000 preferred stock with accumulated dividends of $640,000 to June 30, 1899.

Iron and Industrial Stocks.

Industrial stocks have been fairly active, but with prices showing fluctuations over rather a narrow range, except Tennessee Coal & Iron, which advanced sharply on the declaration of a 2 per cent. dividend on the common stock and of a dividend to cover in full the long accumulation of unpaid dividends on the preferred.

	Bid.	Asked.
American Bicycle Company, common.....	12	14
American Bicycle Company, preferred.....	40	43
American Bicycle Company, bonds.....	..	87½
E. W. Bliss, common.....	..	137½
E. W. Bliss, preferred.....	125	..
Cramp's Shipyard stock.....	78	82
Diamond State Steel.....	4	4¼
International Silver, common.....	6	7
International Pump, common.....	22¼	22
International Pump, preferred.....	66	67½
Otis Elevator, common.....	23	25
Otis Elevator, preferred.....	86	88
Pratt & Whitney, common.....	3½	5
Pratt & Whitney, preferred.....	46	54
U. S. Projectile.....	95	105
Sloss & Sheffield Steel & Iron, common.....	27	29
Sloss & Sheffield Steel & Iron, preferred.....	69	70
Tidewater Steel.....	14⅞	15
U. S. Cast Iron Pipe Company, common.....	6	7
U. S. Cast Iron Pipe Company, preferred.....	47	49
H. R. Worthington, preferred.....	115	117
Empire Steel, common.....	..	22
Empire Steel, preferred.....	..	60

The annual report of the Pennsylvania Steel Company, as submitted at the annual meeting in Philadelphia last week, showed an increase in the tonnage and value of the products of both the Steelton and Maryland plants of the company over the preceding year in every department of manufacture, the increase in value ranging from 13 to 47 per cent. The financial results of the operation of both the Steelton and Maryland plants combined for the year 1899 follows:

Gross profits from operation.....	$2,330,171.41
Additions to plant, charged to cost of manufacture..	423,223.26
Dividend of preferred stock.....	26,239.50
Interest	388,341.48
Amount charged to loss and gain and expense account	119,992.36
Total	$957,796.60
Net profit.....	1,372,374.84

The retiring Board of Directors was re-elected as follows: Edgar C. Felton, Luther S. Bent, Effingham B. Morris, F. W. Hunnewell, John Cassels, George Wood, Evans R. Dick, William D. Winsor, except that Arthur Brock was elected to succeed C. Stuart Patterson, resigned.

The Pottstown Iron Company, Philadelphia, have declared a dividend of 20 per cent. on the outstanding first preferred stock. The sum available for this purpose is $171,147. This is the first dividend since the reorganization in 1898.

Phœnix Iron Company, Philadelphia, have declared a quarterly dividend of 1¾ per cent. on the preferred shares of the company for the quarter ending January 31.

The directors of the Hall Signal Company have declared a dividend of 6 per cent. on the preferred stock and 1 per cent. on the common stock, payable April 2.

The Colorado Fuel & Iron Company earnings for the month of February, net, increased $147,136. For seven months the net earnings increased $709,321. Earnings for seven months show a surplus after fixed charges and preferred stock dividend for 12 months of $674,032.

The directors of the Westinghouse Air Brake Company of Pittsburgh, Pa., have declared the regular quarterly dividend of 2½ per cent., and an extra dividend of 5 per cent., payable April 10. At Washington, D. C., on the 19th inst., the United States Supreme Court denied the petition of the Westinghouse Air Brake Company for a writ of certiorari in their suit against the New York Air Brake Company. The case was originally instituted by the Westinghouse Company, alleging violation on the part of the New York Company of the Westinghouse patents. The decision of the Circuit Court of Appeals for the Second Circuit was opposed to the prayer of the Westinghouse Company and the effect of the action is to refuse to review that decision.

The Amalgamated Copper Company have declared a quarterly dividend of 1½ per cent. and an extra dividend of ½ per cent. was declared payable April 30, 1900, to stockholders of record at 5 p.m. March 26, 1900.

The following statement was made at the annual meeting of the National Steel Company held in Jersey City this week:

Assets:	
Plants, real estate, machinery, &c.....	$49,375,510
Improvements	3,617,329
Investment in ore coke coal properties, furnaces and boats	11,058,287
Inventories	3,170,550
Advance on ore on docks.....	1,754,045
Accounts receivable.....	3,511,394
Cash	4,125,219
Total	$76,612,335
Liabilities:	
Capital stock, preferred.....	$27,000,000
Capital stock, common.....	32,000,000
Contracts due on ore properties boats:	
Due August 1, 1900.....	1,640,491
Due August 1, 1901.....	2,239,342
Purchase money, mortgages assumed.....	4,471,000
Accounts payable.....	1,937,774
Surplus	7,323,719
Total	$76,312,335

After the meeting the directors met and voted to charge off improvements made during the fiscal year, amounting to $3,617,329. The directors whose terms expired were re-elected.

A very important gathering of officials of the Carnegie Steel Company, Limited, was held in Atlantic City, on Tuesday. Among those present were F. T. F. Lovejoy, D. M. Clemson, James Gayler, Henry Phipps, C. M. Schwab and Andrew Carnegie. It is intimated that at this meeting preliminary negotiations were started by which the litigation between H. C. Frick and others and the Carnegie Steel Company, Limited, and some minority stockholders in the Frick Coke Company and the Carnegie Steel Company may be settled out of the courts. However, nothing official has been given out.

HARDWARE.

Condition of Trade.

THE situation has not materially changed since our last report. The weather has not been such in general as to have a stimulating effect on business, and jobbers and manufacturers are looking forward to the coming of decided spring weather, which is expected to quicken the demand, especially for seasonable goods. Both wholesale and retail merchants are waiting for a demand which will relieve them of their stocks, which in most cases are considerably larger than usual, and some of them purchased at relatively high prices. Until this occurs, or until there are definite indications that it will soon occur, they are limiting their purchases to such goods as are needed immediately, refusing to add to their stocks anything that they may have to carry for any length of time. The advances in price are having their effect in curtailing building and other enterprises, as for example, in this city, where the permits for new buildings are much less than usual, showing a disposition to defer the erection of buildings until lower prices are prevalent. Similar conditions undoubtedly prevail elsewhere. There is a good deal of irregularity in prices on leading lines. This is owing principally to the action of the jobbers in cutting prices and underselling manufacturers. This fact, together with regular competition among themselves is having its effect on manufacturers' quotations in a few lines. The manufacturers, however, are pursuing a conservative policy and refrain from yielding in the matter of price more than is necessary, preferring to curtail production somewhat rather than accumulate too heavy stocks. Many take the reasonable view that something of a reduction in prices would not be an unmixed evil, and would tend to make the present existing prosperity more healthful and long-continued. The strength of the foreign market is a very satisfactory feature of the situation, high prices generally prevailing abroad for Iron and Hardware products, with exceptionally active business. Our exports are also heavy and give promise of steady increase.

Chicago.

(By Telegraph.)

So responsive is country trade to the fickle weather which, during the past few days, has been alternating almost daily between winter and summer that sales of Hardware have been correspondingly changeable. A solid week of genuine spring weather, in the opinion of leading factors to the Hardware jobbing trade, would be followed by a heavy trade in all lines of seasonable goods. The season is too late for Skates, too early for Rakes, and trade only waits for the weather to assume a definite form before asserting itself in unmistakable fashion. While business has in a manner been halting, the totals are not unsatisfactory from the sellers' standpoint. And besides the buying of spring goods the past few days have witnessed quite a movement in the line of fall goods, especially those which would be naturally affected by an advance in Sheets. Heavy orders have been received for Elbows, Stove Pipe, Hods, Stove Boards, and similar articles. The line of demarkation between city and country trade is clearly perceived, especially in building Hardware and in shop and Mechanics' Tools, for which there is a steady call from the South, but little demand from the city. Prices are generally without change. Picks and Mattocks are said to be booked for an early advance. Various lines of Wagon Material have also encountered a sharp rise in value. The Wagon and Carriage Hardware trade is brisk. Material of good quality is scarce, and manufacturers are ordering in fairly good quantities. Heavy Hardware is more active, but is still curtailed locally by the widespread suspension of operations in the shops and factories.

St. Louis.

(By Telegraph.)

The Shelf Hardware business is moving along in a steady, regular way. Some purchasing of seasonable fall goods is being engaged in. Purchases, on the whole, are much better than expected, and one informant reports sales for first half of March as in excess of same period of 1899. Last week also brought more opening stock orders than have recently been recorded. This is a distinctly encouraging feature, it being presumed that the ventures followed careful investigations as to volume of business to be had in the interested localities. Prices, generally speaking, seem to be well sustained. Galvanized and Black Sheets show strength, and the approaching season brings increasing demand. Sales of stamped and pieced Tinware are reported good. Weather and road conditions have been unfavorable to general trade in Heavy Hardware, but nevertheless orders have been coming in quite freely, especially for repair items. Inquiries are stated as more numerous than ever before at this season. Carriage and Wagon Material in the wood work line is in better request, and prices are firm with advancing tendency. There is rumor that some of the prominent makers of wood stock expect to get together.

Notes on Prices.

Wire Nails.—The demand for Wire Nails continues seasonable and the market firm. Manufacturers' quotations remain as follows, f.o.b. Pittsburgh, terms 30 days, 1 per cent. off in ten days:

To jobbers in carload lots	$3.20
To jobbers in less than carload lots	3.22½
To retailers in carload lots	3.35
To retailers in less than carload lots	3.45

New York.—The local demand for Wire Nails has been temporarily affected by unfavorable weather, showing a slight falling off. Quotations are adhered to, and are as follows:

To retailers, carloads on dock	$3.53
To retailers, less than carloads on dock	3.66
Small lots from store	3.60

Chicago, by Telegraph.—Both from manufacturers and from jobbers the current trade in Wire Nails is pronounced active. The beginning of building operations in many parts of the country is the general explanation, though persistent newspaper reports of an advance in prices may be partially responsible for the demand. At this writing no advance has occurred. Single carloads are quoted $3.53, Chicago, and small lots from stock, $3.63.

St. Louis, by Telegraph.—Inquiries are said to be encouraging, especially for carloads. Indications favorable for active spring trade. Quotations are unchanged at $3.58 base, St. Louis, single carloads. Lesser quantities, $3.68 base.

Pittsburgh.—We are advised that there is quite a good demand for Wire Nails, both jobbers and the smaller trade placing orders more freely than for some time past. It is not believed that the high price of Nails is going to interfere to any extent with demand. Manufacturers' quotations are as follows, f.o.b. Pittsburgh, terms 30 days, 1 per cent. off in ten days:

To jobbers in carload lots	$3.20
To jobbers in less than carload lots	3.22½
To retailers in carload lots	3.35
To retailers in less than carload lots	3.45

Cut Nails.—No important change has taken place in the condition of the Cut Nail market. It is rumored that the market shows a slight weakness, and the demand certainly is not heavy. The recent differential between Cut and Wire Nails has not apparently increased materially the proportionate demand for the Cut. Quotations are as follows, f.o.b. Pittsburgh, terms 30 days, 1 per cent. off in ten days:

1000 kegs and over	$2.50
Carload lots	2.55
To jobbers in less than carload lots	2.60
To retailers in less than carload lots	2.70

New York.—Business continues in about the same volume as for the past few weeks. Reports from territory adjacent to this market indicate that the cost of material will interfere with building operations this spring. Regular quotations are as follows:

To jobbers in carload lots on dock	$2.73
To jobbers in less than carloads on dock	2.78
To retailers in less than carloads on dock	2.90
Small lots from store	2.80

Chicago, by Telegraph.—Prices hold steady at $2.90 from store, widely distributed and mainly in small lots.

St. Louis, by Telegraph.—Just now sales are within usual bounds. Jobbers report no increase in demand. $2.90 is base, jobbers' stock.

Pittsburgh.—Demand for Cut Nails is only fair, buyers placing orders for small lots covering only present requirements. We quote, f.o.b. Pittsburgh, terms 30 days, 1 per cent. off in ten days, at $2.50 for 1000-keg lots or over, $2.55 for carload lots and $2.70 for less than carload lots.

Barb Wire.—The demand for Barb Wire continues proportionately small, as the result of high prices. The market is firm at the following quotations for domestic trade, f.o.b. Pittsburgh, net cash, or 1 per cent. off in ten days:

To jobbers in carload lots, Painted	$3.65
To jobbers in carload lots, Galvanized	3.80
To jobbers in less than carload lots, Painted	3.67½
To jobbers in less than carload lots, Galvanized	3.82½
To retailers in carload lots, Painted	3.80
To retailers in carload lots, Galvanized	3.95
To retailers in less than carload lots, Painted	3.90
To retailers in less than carload lots, Galvanized	4.05

Chicago, by Telegraph.—Conditions are without change. Manufacturing consumers of plain Wire are steady buyers, and a heavy tonnage is thus being placed. The Barb Wire trade has not experienced its regular spring revival to a notable degree, for which the unpromising weather is largely responsible. Quotations are as follows, Chicago delivery: Single cars of Plain Annealed Wire, $3.38; Painted Barb Wire, $3.98; Galvanized Barb Wire, $4.13, with 10 cents additional for small lots from jobbers.

St. Louis, by Telegraph.—Normal in action, but, as in Nails, the outlook is extremely favorable for spring business. We quote Painted in carloads at $4.03, lesser quantities at $4.13, with 15 cents to be added for Galvanized.

Pittsburgh.—Demand for Barb Wire so far this season has been lighter than in past seasons, probably due to the high prices. The tone of the market, however, is strong. For domestic trade we quote Painted Barb Wire at $3.65 in carload lots to jobbers, with an advance of 15 cents for Galvanized, all f.o.b. Pittsburgh, terms 30 days, or 1 per cent. off for cash in ten days.

Smooth Wire.—The demand for Smooth Wire continues without diminution. The market is strong at previous quotations as follows, f.o.b. Pittsburgh, terms 30 days, or 1 per cent. off in ten days:

To jobbers in carload lots	$3.05
To jobbers in less than carload lots	3.07½
To retailers in carload lots	3.20
To retailers in less than carload lots	3.30

Pittsburgh.—The demand for Smooth Wire at the present time is fairly satisfactory. The tone of the market is strong, and we quote, f.o.b. Pittsburgh, terms 30 days, or 1 per cent. off in ten days:

To jobbers in carload lots	$3.05
To jobbers in less than carload lots	3.07½
To retailers in carload lots	3.20
To retailers in less than carload lots	3.30

Shovels.—At the recent meeting of the associated Shovel manufacturers existing prices were continued, with guarantee for the three months following April 1. So far as the manufacturers are concerned the market is firm, and established prices regularly maintained. But there is a good deal of irregularity in the prices at which the goods are sold by the jobbing trade, who are not endeavoring as heretofore to adhere strictly to the regular prices. The National Hardware Association have apparently become convinced that it is not feasible longer to continue their efforts in this direction. Continued preparations are being made by outside manufacturers to put a line of Shovels on the market.

Chain.—The trade will observe in another column the announcement of the completed organization of the Standard Chain Company, including a number of prominent concerns. The market continues firm and with an excellent tone. The demand is reported good. The condition of the market abroad tends to give strength to it here.

Tacks.—The market for Tacks has for some time been in a situation very unsatisfactory to the manufacturers. Prices have developed a good deal of irregularity. This is owing principally to two causes. The natural competition between the manufacturers whose production is not readily taken has lowered prices somewhat, especially as some of the smaller manufacturers, making in some cases only a limited line, find it necessary to undersell the more prominent makers. The fact that jobbers have many of them heavy stocks on hand and are marketing them at cut prices is also referred to by the manufacturers as having had a demoralizing effect on the market. Quotations on this line are accordingly uneven and vary a good deal between the different manufacturers. A revised series of Hardware list discounts was adopted by the associatiatel Tack manufacturers as in effect March 19.

Sledges.—The regular monthly meeting of the Sledge Makers' Association was held in the Hotel Schenley, at Pittsburgh, on Thursday, March 15. The concerns represented were Iron City Tool Works, Anderson, Dupuy & Co. and Klein-Logan Company, all of Pittsburgh; Atha Tool Company, Newark; Fayette R. Plumb, Philadelphia, and Schulte-Lohoff Company of Evansville, Ind. After a short discussion of existing conditions in trade it was decided to reaffirm present prices and terms on Sledges until further notice. Aside from this nothing but routine business was transacted.

Empty Paper Shells.—The manufacturers of Empty Paper Shells made an advance, March 15, in the prices of these goods of about 10 or 15 per cent.

Binder Twine.—Manufacturers did not begin making Twine as early as usual this season, and they are pursuing a conservative course in the quantity they will manufacture. Some thousands of tons of Twine were carried over from last season, and the estimated quantity has been taken into account in providing for prospective requirements. Should these fall below what is expected, on account of failure in wheat crop, it is reported that

makers will carry over surplus Twine rather than force it upon the market at cut prices. Should a slump in the price of Hemp occur this position might prove difficult to maintain. Manila Hemp is due at this port in 30 days, and more in 60 days. This can be purchased for less than spot price. Hemp to arrive, however, may not have much effect on the price of Twine. But a small quantity of Manila Twine is being made, sufficient only to fill orders, as the difference of 4 cents or more between the price of Sisal and Manila Twine this year makes the latter so expensive that there will probably be little demand for it. Jute Rope has recently taken the place of Sisal Rope to such an extent that a larger quantity of Sisal Hemp is available for Twine. Some manufacturers have contracted for their output until May 1, and are not seeking more business. Orders have not been placed liberally. It is reported that some manufacturers have guaranteed prices to stimulate trade, but this is not believed to be very generally done. Prices as a rule are firm, but some orders have been accepted by Western factories for Chicago delivery at ¼ cent below regular prices. The following quotations are made on Twine, f.o.b. New York, Philadelphia or Boston, with a reduction of ⅛ cent per pound for orders less than a carload lot and over 10,000 pounds, and a reduction of ¼ cent per pound for carload lots:

	Cents.
White Sisal, 500 feet to pound	11¼
Standard, 500 feet to pound	11¼
Manila, 600 feet to pound	14¼
Pure Manila, 650 feet to pound	15¾

Wrought Iron Pipe.—The market for Wrought Iron Pipe is in the same condition as at our last report. The trade throughout the country are putting into effect the new system of prices announced by the manufacturers. The jobbers in the principal cities have adopted selling prices to their trade for carload and less than carload lots. Prices to the large trade given in *The Iron Age* March 8 are still in force. Jobbers' selling prices are given in the Pittsburgh report on another page.

Glass.—The demand is largely for small sizes of Glass, and this comes principally from the South. Blowers object to working on small sizes, so that it is difficult to supply this demand. The building trade strikes are affecting Chicago and the West unfavorably, and little Glass is moving in the East. It is rumored that another cut in prices is to be made by the American Window Glass Company, either before or after the spring demand is supplied. Jobbers' quotations east of the Alleghanies are as follows: Less than carloads, single strength, 85 and 10 for the first bracket; 85 and 15 for the second and third brackets; all brackets above, 85 and 20. Double, 85 and 10 for the first five brackets; 85 and 20 for the 60-inch bracket, and 85 and 25 on all brackets above. Small lots from store: Single strength, first bracket, 85 and 10 per cent. discount; all above, 85 and 15 per cent. discount. All double strength, 85 and 20 per cent. discount.

Factory prices for carloads are as follows:

Single strength:	Per cent.
First bracket	85 and 25
Second and third brackets	89
All above	90 and 5
Double strength:	
First five brackets	89
60-inch bracket	90
70 to 100 inch brackets, inclusive	90 and 10 and 5
All above	90 and 20

Oils.—*Linseed Oil.*—On March 15 an advance of 3 cents per gallon was made in the price of Linseed Oil. Large dealers are not in sympathy with the policy pursued by those controlling the market in forcing up prices, considering it unwarranted. The requirements of large dealers, as a rule, are covered until May 1. Prices for some time have been too high to encourage speculative buying, and purchases are only moderate. Quotations are as follows: City Raw, 59 cents in lots of five barrels or more and 60 cents in lots of less than five barrels. Out of town brands are 2 cents per gallon less. Calcutta Raw Oil is held at 71 cents per gallon.

Spirits Turpentine.—A more active demand for the past week has advanced prices of Turpentine and local quotations are as follows: Southerns, 56½ cents; Machine made barrels, 57 cents per gallon. Supplies at Southern points are reported as small, and the recent cold wave as likely to delay the early movement of the new crop.

Standard Chain Company.

AFTER some months of negotiations, and a considerable modification in plans, the Standard Chain Company, with principal headquarters at Pittsburgh, has been organized, with capital stock of $3,000,000, $1,500,000 of same being preferred stock, and the same amount common. The companies included in the new corporation are:

Baker Chain & Wagon Iron Mfg. Company, Allegheny, Pa.
Garland Chain Company, Rankin Station, Pa.
P. Hayden Saddlery Hardware Company, Columbus, Ohio.
Franz Krein Chain Company, St. Mary's, Ohio.
Franz Krein Mfg. Company, Marion, Ind.
John C. Schmidt & Co., York, Pa.
Nes Chain Mfg. Company, York, Pa.
Lebanon Chain Works, Lebanon, Pa.
Bower & Mallery, Carlisle, Pa.

Officers.

John C. Schmidt, York, Pa., president.
A. S. White, New York, vice-president.
J. T. Davis, Allegheny, Pa., general manager.
Robert Garland, Rankin Station, Pa., secretary and general sales agent.
Robert Riguey, New York, treasurer.
Chas. I. Nes, York, Pa., assistant general manager, Eastern District.
Franz Krein, St. Mary's Ohio, assistant general manager, Western District.

Board of Directors.

John C. Schmidt of John C. Schmidt & Co., York, Pa.
J. T. Davis of Baker Chain & Wagon Iron Mfg. Company, Allegheny, Pa.
Robert Garland of Garland Chain Works, Rankin Station, Pa.
Chas. H. Hayden of P. Hayden S. H. Company, Columbus, Ohio.
Franz Krein of Franz Krein Chain Company, St. Mary's, Ohio.
Chas. I. Nes of the Nes Chain Mfg. Company, York, Pa.
Eli Attwood of the Lebanon Chain Works, Lebanon, Pa.
Peter Wertz of Bower & Mallery, Carlisle, Pa.
A. S. White, New York.
Chas. R. Flint, New York.
F. F. Culver, New York.
Henry W. Oliver, Pittsburgh, Pa.
Oscar Gubleman, Jersey City, N. J.

Executive Committee.

John C. Schmidt, A. S. White, Chas. H. Hayden, James T. Davis, Robert Garland and Chas. I. Nes.

The Standard Chain Company controls some of the most modern and best located plants for the manufacture of Chain of all kinds in the United States. The capitalization of the company is on a very conservative basis and it is believed will permit of the paying of regular dividends to the stockholders. It is understood that practically the entire issue of the capital stock has been taken by the constituent companies. The persons interested in the management of the company are thoroughly familiar with the manufacture of Chains in all departments, and it is believed a considerable saving in the cost of manufacture will be effected by the consolidation of these plants. The selection of John C. Schmidt as president and Robert Garland as secretary and general sales agent of the Standard Chain Company will meet with the approval of the trade, among whom they have a wide acquaintance.

As a somewhat unusual circumstance and illustrating the conservative policy which it is intended shall be pursued by the company, it may be noted that immediately after its organization it was decided that prices on Trace Chains should be revised, so that jobbers should have a better margin than heretofore, and a slight reduction was made on this line to them. The fact that the

active management of the business will be in the hands of men who have had a long experience in this line gives ground for the expectation that their direction of its affairs will be on a conservative basis and avoid the mistakes which have often been made in similar organizations. There are a number of important concerns outside the company, so that there will doubtless be active competition for business.

The Standard Chain Company have secured a suite of rooms on the fourth floor of the First National Bank Building, Fifth avenue and Wood street, Pittsburgh, Pa., where their general offices will be located.

Trade Topics.

Wire Fencing versus Barbed Wire.

It is very evident that the use of Barbed Wire is not increasing in proportion to the growth of the country, while in some sections it is actually decreasing. Although Barbed Wire is the cheapest and most effective fence ever invented, yet it is slowly losing its place in popular favor, partly because of certain defects which have developed in use, and partly because of sentiment. It is claimed that stock are constantly injured by running against the barbs, and in hot countries this is a serious matter, and, also, that it is not the best form of a hog fence, since a determined hog will try to get through it and will consequently be severely injured by the barbs.

There is likewise a growing prejudice against Barbed Wire, because the barbs are very cruel, insurmountable affairs. The claim for the Woven Wire fence is, that while it is more expensive than the Barbed fence, yet, when well made and well put up, it will contain any stock and that without any injury whatever to the stock. It is certainly increasing very largely in sales, and the various manufacturers are spending enormous sums introducing and advertising it.

There seems to be but little appreciation of the fact that the difference in the various kinds of Barbed Wire, consists almost entirely in the barbs. The strands are usually made from the same size Wire, and whether a Wire is heavy or light, depends upon the shape, size and manner of attachment of the barbs. When it is remembered that in thickset or hog Wire the barbs are only from 3 to 5 inches apart, that there are usually four wires to every barbed fence, and that there are a little over 63,000 inches in a mile, it will be readily seen that a very slight difference in each barb will make a very great difference in the weight per mile. As the user of Barbed Wire buys it by weight and uses it by length, it is to his interest to get the lightest Wire that he can buy consistent with strength.

Present Prices and the Retail Trade.

The following letter from a prominent merchant in New York State touches on the present situation, and especially the large stocks carried by both the wholesale and retail trade:

I have been brought in contact during the last six months with a great many manufacturers and users of Iron in different forms. I have yet to find a single instance where a manufacturer or his agents report but what they have a large stock of raw material purchased at old prices, practically enough to carry them through the trade of 1900. Reports in your own paper and from the jobbers state that the jobbers are carrying very large stocks of Hardware, but I have noticed from time to time in the letters written by large jobbers that they invariably do their utmost to boom and sustain the market. They try to carry the idea that the retailers have not any extra stock over ordinary years, when it is a fact that their own representatives know and have reported to them that they find the stock of Hardware in retailers' hands from 25 to 50 per cent. heavier than a year ago, even when inventoried at old prices—they have so stated to me.

I have thought many times that the present boom in Hardware in the end is detrimental to the retail trade. It not only curtails our sales but also our profits on what we sell. It also necessitates carrying either smaller stocks or using more money in the business. I think if the facts were known in regard to the stocks of Hardware, Iron, &c., in the United States the dealers themselves would be astonished at the amount. I have no sympathy whatever with trusts in any form, and I think it would be of interest to your retail readers if you would get their expression in regard to the same, and also the amount of stock they are carrying over previous years. This would do no harm to the trusts and their representatives unless it would be to show them the prospect for future orders. We do not blame the manufacturers and jobbers for wanting to unload at the present high market prices, but we think they will find it is a difficult job in view of the large stocks on hand with every prospect of not over half the trade in Wire, Nails and such goods that have had the heaviest advances. That is our experience and it looks reasonable. Any person that thought of building this year, when he comes to see that the cost will be over 25 to 50 per cent. on account of the recent advances, will wait. A number of our customers have so expressed themselves, and also we hear the same in a number of other lines. We fail to see where the large demand is coming from. The purchasing power of the country, on account of the heavy advances, is considerably less as we see it, as no doubt not one person in ten that labors has had any advance whatever in his wages and the purchasing power of his wages has been curtailed at least 25 per cent.

Buying of Seasonable Goods in Advance.

An interesting feature for the past four months has been the heavy buying of all seasonable goods far in advance of actual needs. Two impressions have contributed to this end. First was the feeling, brought about by the experiences of 1899, that there would be difficulty in getting the goods when needed; secondly, the possibility of a still further advance in prices. Dealers have learned by experience that the most vital thing is to have seasonable goods in stock when they are wanted. It is poor consolation to have them bought at low prices and not to have them in stock when the demand sets in, because orders were placed with concerns who cared more for demoralizing prices than for filling orders.

Everything now points to an increased acreage in all the staple products of the farm, and this in turn means an unusually large demand for all Farming Tools. Incidentally it is the experience of many years of observation that the demand for tools for planting and cultivating the crops is an assured thing, alike in good times and in bad, for whatever happens the soil will, as a rule, be cultivated in steadily increasing acreage.

From the present outlook there is little reason to apprehend any serious shortage in seasonable goods, though the demand will probably tread close upon the heels of supply. Possibly Screen Wire Cloth may be an exception, as there is considerable doubt as to whether there will be enough to go around.

Requests for Catalogues, &c.

J. K. LLOYD, wholesale and retail merchant, Mena, Ark., has just completed and placed in position shelving and drawers to be used exclusively for catalogues, &c., and would be pleased to receive catalogues, with prices and discounts, from manufacturers of Hardware specialties, Pumps, Wagons, Buggies, Implements, Leather and Findings and Harness Goods of all kinds.

Gordon & Harmon, dealers in Machinery, Buggies and Wagons, Indianapolis, Ind., are adding Hardware and Tinware to their stock, and request copies of catalogues and price-lists from manufacturers in these lines.

New England Iron and Hardware Association.

THE largest and most successful banquet in the history of the New England Iron and Hardware Association was held at Young's Hotel, Boston, Tuesday evening, March 20. It was their seventh annual dinner, and surpassed all previous entertainments of this association, both in numbers and enthusiasm. A reception was held at 5.30 p.m. in the parlors of the hotel, which brought together a representative company of New England merchants and manufacturers and distinguished guests from other parts of the country. Many high officials of Hardware trade organizations were present, and general good fellowship prevailed. President Harry L. Doten, with his fellow members of the Dinner Committee, John T. Boyd, chairman, and Allan J. Chase, received the visitors; when dinner was announced there were no strangers, everybody having been introduced to everybody else.

Promptly at 6 o'clock President Doten assembled the special guests of the association, Rev. Edward A. Horton; John Bindley, president of the National Hardware Association; T. James Fernley, secretary-treasurer of the National Hardware Association; Admiral William T. Sampson; Lieut. E. L. Bennett, U. S. N.; Henry B. Lupton of the American Steel & Wire Company; Robert A. Bolt, president Boston Associated Board of Trade; Charles E. Adams, president of Massachusetts State Board of Trade; Walter C. English, manager Boston office of *The Iron Age;* W. C. Brundage of *Hardware,* Henry C. Pierson, president Western New England Iron and Hardware Association, and George W. Burditt, president New England Hardware Dealers' Association, and the entire company proceeded to the banquet hall, which contained five tables handsomely decorated with cut flowers. By means of a printed diagram each guest found his allotted place.

One hundred and twenty-five seats were occupied, and beside each plate was a book of old familiar and late popular songs, many of which were sung by the company between the courses of the dinner and the addresses which followed. Early in the dinner Toastmaster Adams proposed three cheers for President McKinley, which were given with a will, after which a verse of "America" was sung standing. Throughout the dinner popular music was played by an excellent orchestra, and there was much life and jollity.

The following gentlemen participated in the banquet, besides those mentioned above, who were seated at the president's table:

James D. Foot,
George J. Mulhall,
Charles G. Keeler,
J. N. Mason,
A. M. Wiley,
D. Fletcher Barber,
E. H. Mansfield,
E. L. Richards,
W. A. Fisk,
George W. Williams,
S. A. Gould,
James A. Nealey,
W. G. Angell,
J. F. Blauvelt,
E. W. Ingraham,
J. N. Frye,
C. A. Earl,
F. M. Smith,
Charles A. Burditt,
M. L. Bailey,
Joseph H. Williams,
James A. Monroe,
D. Arthur Brown,
Hon. J. C. Linehan,
H. H. Bishop,
Samuel A. Bigelow,
Josiah E. Bacon,
William H. Bacon,
H. C. Perham,
R. M. Boutwell,
George E. Rogers,
Thomas McLaughlin,
C. M. Parker,
P. F. Burke,
L. H. Pease,
T. H. Baldwin,
Harry Disston,
J. H. Robbins,
W. A. Hopkins,
A. H. Decatur,
E. J. Neale,
James F. Savage,
Charles R. Stark,
George L. Bowen,
George P. Bullard,
Luther Little,
Charles H. Parsons,
Leon C. Carter,
Francis B. Dana,
F. F. Hodges,
L. W. Thompson,
Edwin L. Haley,
Arthur C. Harvey,
C. W. Henderson, Jr.,
A. H. Inman,
Thomas H. Russell,
George H. Billings,
E. P. Sanderson,
A. J. Nichols,
H. J. Astle,
Thomas M. Holden,
Henry L. Houghton,
Increase E. Noyes,
Charles H. Breck,
William Chamberlain,
C. L. Landers,
C. F. Bragg,
W. H. Bense,
M. McBarron,
Charles H. Parker,
Fred. W. Southard,
Allan J. Chase,
Jno. T. Chase,
Charles C. Lewis,
R. S. Woodruff,
Frank C. Fellows,
Oscar A. Shepard,
A. H. Ranlet,
Peter E. Strauss,
H. W. Waite,
Joseph K. Hayes,
J. D. Keith,
Hayward C. Dodge,
G. C. Carpenter,
H. E. Nickerson,
William M. Pratt,
Willard A. Paul,
Samuel B. Reed,
Charles King,
E. W. Leete,
C. E. Stumcke,
John T. Boyd,
G. Lewis Sargent,
Robert E. Hofer,
Russell Sargent,
James Denny, Jr.,
F. W. Carpenter,
Charles E. Alexander,
Henry C. Bangs,
John H. Congdon,
Herbert Field,
F. W. Philbrick,
Herbert Austin,
W. Sargent Locke,
Francis B. Austin,
George H. Wightman,
J. Bradford Hunter.

Among the Visitors Were

L. H. Pease, Stanley Works.
James D. Foot, Kearney & Foot Company.
Harry Disston, Henry Disston & Sons.
Chas. H. Parsons, P. & F. Corbin.
E. H. Mansfield, Russell & Erwin Mfg. Company.
Wm. Chamberlain, Emery-Waterhouse Company.
R. S. Woodruff, C. S. Mersick & Co.
John H. Congdon, Congdon & Carpenter Company.
H. H. Bishop, McIntosh-Huntington Company.
G. Lewis Sargent, Sargent & Co.
James A. Nealey, American Screw Company.
Wm. M. Pratt, Goodell-Pratt Company.
Chas. G. Keeler, H. B. Ives & Co.

It was 8.15 when President Harry L. Doten rapped for attention, and addressed the guests as follows:

Address of President Doten.

It is with the keenest feelings of regret that I am obliged to inform you that our guest of the evening, Henry M. Whitney, is ill with tonsilitis, and his physician would not allow him to leave his home.

It is a great disappointment to us all, as Mr. Whitney had accepted our invitation and made his arrangements to address us, and I am confident nothing but illness would have prevented his being here, and further, I understood he had something of a special nature to talk to us about.

As you are all aware, he is closely identified with Dominion Coal and Iron in the Provinces, and I presume he would have had something to say, in this connection, that would be of particular interest to the members of the New England Iron and Hardware Association. However, we are used to disappointments and must be reconciled.

We feel highly pleased in having such distinguished gentlemen as our guests to-night, and I wish to thank them at this time for accepting our invitation.

I wish also to extend a cordial welcome to all our members and their guests, and to thank the members for their untiring efforts during the past year in assisting in the work of bringing our association to the high position we now hold.

ADVANTAGE OF ASSOCIATION.

In looking over this large gathering of our members and guests I cannot help comparing the number in attendance to-night with our past annual dinners, and why is it so? It is because the jobbers of New England, with the assistance of this association in connection with the National Association, have been brought together in such close relations, by frequent meetings, monthly and yearly dinners, that they have become better acquainted with each other, and have each other's confidence, and to-day our association is stronger, not only financially, but stronger in the feeling that its members are all working for the common cause, and selling their Iron, Hardware and Wooden Ware at a profit, basing cost on market values and not on old contract prices, and this could not be done in New England to-day, as past history has shown, except by being closely identified with each other.

Some people have said that it was impossible to do business in our lines last year without making money, but without the assistance of this association could we have made enough, and would the question ever have come up. Is it not wise for us to prepare for the years of decline, which must eventually come, by charging off a portion of the profits of 1899 to a special account, to take care of the years of depression, when we have a low range of prices, with Steel Billets at $14 instead of $35, as now, and an expense account double in percentage of last year?

NEW ENGLAND CONSERVATISM.

The New England business men are very conservative, and I sometimes question if by their extreme conservatism they do not allow good business to be placed in New York and elsewhere that rightfully belongs to us.

As you are aware, it was only a short time ago that there was formed in this city a bureau of commerce and industries to attract trade to Boston, but it failed to receive the support of the merchants, and it was abandoned.

I still believe we should have concerted action, and retain all the trade in the New England States, and continue to hold that which we now have outside.

We are all aware that the new England jobber is gradually having a wall built around him, so that it is almost impossible to do any business

WEST OF THE HUDSON RIVER,

It is only an imaginary wall, but is nevertheless a fact. Is there not some way we can overcome these difficulties and have a broader field to market our goods?

The Iron and Steel manufacturers of Pennsylvania by concerted action have been able to do an enormously large export business, and if you were to ask one of our guests this evening the price of Wire Nails for export and price for home consumption you would see how it is done.

It is not my desire to make any extended remarks, as the members are all aware I was not elected to office for my abilities as a speaker, but because I was willing to look after the every day workings of this association. We have, however, been particularly fortunate in having as a member a gentleman who has the happy faculty, as I have heard it expressed, of introducing the guests of the evening and making them feel that inspiration which enables them to entertain and instruct their hearers. I now have the pleasure of introducing as toastmaster of the evening Charles Clark Adams.

Mr. Adams in assuming the position of toastmaster spoke as follows:

Remarks of Toastmaster Adams.

I thank you for your kind and gracious introduction, and congratulate the association on this magnificent attendance, it being the largest gathering we have ever had.

As I look around and see this fine body of business men, it is, indeed, a pleasure to realize that my life work has been in the Iron and Hardware trade.

Now that the country has learned that present prices are to be maintained for some time to come business has taken on a new movement. Lumber is looking up the last few weeks. Twenty-three hundred miles of railway are being projected, which means the expenditure of fully $92,000,000. Building operations are being projected. All these items are of interest to our trade and its kindred lines, therefore we have a right to be hopeful, and labor on to receive our share of the great results.

A word about Hardware. It seems to me that one fault of our trade has been the persistent manufacture and pushing of low priced goods. This country is growing so wealthy and strong that a demand is growing up for better goods, heavier and more durable. It is not a pleasant thing for Americans to read that an American Consul writes his Government that Bicycles, for instance, are being made and sold in a foreign market at such cheap figures and poor quality that the trade refuse any longer to have confidence in them; and where the American goods at one time had the preference, today the trade shun the goods; a market once gained and then lost. This is not good business principle. I am told that this fact applies as well to some other lines.

I believe cheap goods mean the road to the sweat shops, if not to poorhouses. Yet my experience is that when a cheap article is offered the trade seize upon it, push it, and sell large quantities; when a better article is shown them they reply that their trade does not want it. I believe the consumer does want it, and, if carefully shown up and the quality explained, that a large demand can be created.

However, we are here to-night to enjoy our annual banquet. We have many excellent speakers, there will be plenty of jolly music, so let us all enter into the spirit of the occasion, that this may be our red-letter annual gathering.

John Bindley, president of the National Hardware Association, was then introduced, to respond to the toast of "Hardware." His address, which follows, was given close attention, and was liberally applauded:

John Bindley's Address.

It is sometimes well to indulge in reminiscence to the end that we may realize and understand the changes that have taken place during our business experience, in order that we may appreciate the difference between the present and the past.

Webster defines Hardware, and it is to be presumed that the definition was properly placed upon the word with the first edition issued of this standard dictionary, as "Wares made from metal." This definition is hardly in accordance with the understanding of what the word means and expresses to-day; we now define it as "Wares made from metal or other material."

THERE IS A VAST DIFFERENCE

in the variety and extent of the stocks carried by the average jobbing house of to-day and the stocks that were carried by the same class of merchants two generations ago. By comparison we must surely be expansionists in the fullest sense and meaning of the word.

In the olden days it was truly "Wares made from metal," and the lines carried were quite limited in comparison with what seems to be essential in this day. An ordinary warehouse was then sufficient not only to hold the stock, but also to transact the business of a large jobbing house. How is it now? We have many establishments in our country whose warehouses cover acres in area of floor space, and constantly expanding with ever increasing facilities; daily adding new and improved methods that place the jobbing houses of to-day in a position far in advance of their predecessors who preceded them by a few decades, and the Hardware merchant of the present compares favorably with those engaged in any other line of business.

The stocks in extent and variety carried by the modern wholesale Hardware house comprise an endless assortment of materials and wares essential for man in these luxurious days.

THE MANUFACTURING END.

It may be well for us to here consider the manufacturing end of Hardware. The improvements and the developments have been fully as great as in the merchandising of it, and quite as revolutionary.

In the early days, and in some parts of the world it is still so to a certain extent, the wares or goods were and are made by small factories, and by individuals, who did their work at home in a little shop, often attached to their dwelling. The product was carried to the factor, who was the distributing agent. With the growth and development of our country came greater demands; to meet this increasing trade and to better control the output came the factory; then followed machinery, reducing the cost of each article, all of which largely increased consumption. In the onward march factories were built with the view of greater production of any certain class of goods, so that with the latest improved machinery the articles were produced at an extreme minimum cost, thereby not only stimulating the consumption of the particular article, but also controlling the trade at the same time. Under these new conditions production was greater than demand; this in turn brought about depression in trade. Then the wiseacres set up the hue and cry that the time had come to stop and not overproduce.

DESTRUCTIVE COMPETITION AND ITS SOLUTION.

The intelligent, capable manufacturer who had the interest at heart of those who invested the capital, as well as of his employees, realized his factory could not close down indefinitely if he was to obtain the best results. It was essential to give fairly steady employment to his employees, for their comfort, satisfaction and happiness, as well as to secure standard quality of product. These continually advancing conditions brought about competition that was destructive, but owing to the large investment unless a remedy was found it was likely to continue indefinitely. The solution as applied to correct the trouble was the creation of trusts, combinations of capital or consolidations of interests. The result is practically the same, call it by what name you may. The results are that in many lines of manufactured goods there is only one manufacturer, and we are confined to one source of supply.

HISTORY OF THE MERCHANT.

These are the conditions that confront us now, so you can readily perceive the necessity for the merchant of this day to study closely the causes and effects, that he may have a thorough understanding of the necessities of the new conditions, to the end that he may be able to meet any and all exigencies as they arise. Having traced the manufacturer hastily through his evolution of business to the present day, suppose for a moment we pause and review in a hurried manner the history of the merchant. The largest business of a few years ago was small in comparison with those of the present. The lines and assortments carried were limited. In looking over this assemblage I see faces of some that can remember when the greater portion of our goods were imported from England and Germany, and they no doubt vividly

recall the trials and tribulations they experienced when they first entered into the employ of their houses. Who cannot recall the manner in which Cutlery was put up, with paper barely enough to cover the original package, and it wrapped by an expert? What the trials were when we first had to rewrap one of those packages, and who cannot recall the File packages which were put up in paper, and what a struggle and effort it was to rewrap one of those packages; how the paper would not cover the tangs, and how we could not properly put it into the original condition? We who went through the experience of those days realize what a picnic the boys have to-day in the learning of their business. Then came the increase of manufacturers of goods in the United States, with the improved methods of putting up their wares.

AS THE COUNTRY EXPANDED

the demands became greater, ever calling for later and better methods, as well as constantly increasing facilities to meet this demand. The stock of the jobber has expanded to an extent practically without limit, and to-day his wares cover everything made from Iron, Steel and other materials or combinations thereof that may be useful to man. The same condition confronted the merchant that presented itself to the manufacturer. It was realized that owing to the large amount of capital which was invested and required to successfully carry on a large jobbing business, the question of the survival of the fittest no longer met the exigencies of the case, so they devised new methods to meet the new requirements, one of which was the formation of the

NATIONAL HARDWARE ASSOCIATION.

You know how well it has fulfilled its mission, accomplishing more than its most ardent supporters could anticipate for it. We soon learned to have a high regard for our competitor; through association and by contact we discovered that his motives were pure, his desires to elevate his business, his efforts to so conduct his affairs that the best and most approved standard could be obtained. Explanations, with an understanding of the motives that caused each to reach conclusions, swept away doubts and suspicions, so that confidence in each other asserted control, and we are now diligently, earnestly and honestly following that banner which was to lead us onward and upward, and upon which we inscribed, in the early days of our association, the motto, "A High Standard of Business Methods."

This has been our watchword, and we have been earnestly contending to attain the position of perfection along these lines. The formation as well as the perpetuation of this association is absolutely essential for the best interest of the Hardware trade, not alone from a selfish motive, but as the means of best continuing and elevating trade under the new, present and ever changing conditions. With only one source of supply for many of the articles, how would it be possible that the Hardware jobber of to-day could exist, unless he was in shape to present and confront so formidable a condition as to command the respect and consideration of those who are producing goods? Man is selfish, and no matter who may be at the head of these combinations, the time will likely come that they may use and possibly abuse their power. With the strength of our association united and determined in its purpose, no thoughtful man, or set of men, will deliberately run counter to their desires.

OPPOSED TO UNREASONABLE ADVANCES.

In the early stages of our association we placed ourselves on record as opposed to unreasonable advances in the price of the goods which we handled. We took the position then, and we insist on it now, that, while the manufacturers should have a fair return for their investments, it must be a reasonable one, and that we will not aid and support them in asking prices that seem unreasonable. We feel that we have a duty to perform and that we stand between the producer and the consumer, and while the former should have a fair return for his investment, the consumer should get his goods at a price within reason and justice.

DISTRIBUTING GOODS.

Years of experience have taught the true economic method by and through which the consumer can get his goods at the least possible cost, and experience has verified the teachings of the National Hardware Association that the most economical method of distributing goods, as well as the functions of each branch of our business are now well defined. The manufacturer's province is to produce the goods. The product of his factory can reach the consumer at less cost by being distributed through the jobber than in any other manner. The jobber, through the great variety of goods which he handles, is enabled to distribute the product of the factory at the least possible cost for each class of goods, and should do so only through the retailer, whose legitimate and particular business is to supply the consumer. Thus each of the agents fulfills his function: The manufacturer to produce; the jobber to distribute; the retailer to supply the consumer.

CO OPERATION.

Local associations are the outgrowth or offsprings of the National Association. To attain the greatest benefit it is essential that they should be in good harmonious working condition, and it becomes the duty of each and every one of us to lend our aid and encouragement, in order that the best results may be obtained. It is not proper for any one to visit upon his coassociate reflections, to the end that his conduct does not produce the best conditions, but we must each bear and forbear, give and take, honestly and unwaveringly toil for and expect higher attainments in this cause that is so manifestly our own.

As man is not perfect, how can we expect our competitors to be so? Naturally we are suspicious of our neighbors. How can it be otherwise than they may be so of us? We owe a duty to ourselves, and if we carry that out faithfully we will lend some of our best efforts to the furtherance of the interest of our local associations, so that they may be able to reap their proper harvest. If we really have any doubts about the value of these associations, let us stop for a moment and consider the conditions as they exist to-day, compared with what they were years ago, when the National Association was organized.

IF NOTHING ELSE HAD BEEN ACCOMPLISHED

but the fact that we had a better understanding of our competitors, that we were conducting our business along lines that were more pleasing, and that the conditions were less irritating than formerly we have accomplished sufficient to repay us for the support we have given the association, but without going into details you know and realize that much more has been accomplished. The facts are that the conditions of to-day would have been untenable had we continued to proceed along the lines that existed five years ago. The business of the Hardware people to-day is fairly satisfactory, and it remains with us whether we will so continue it, or whether we shall lose all the advantages gained.

Your local association is your hope. Support it honestly, thoroughly, vigorously. If this work is done faithfully and well you are supporting the national organization, and we will continue to reap the good results of past efforts, as well as to advance, uplift and place our association upon the high pedestal that we are all so ambitious for it to secure—namely, that the standard of business methods shall be higher and higher until perfection is attained.

The Next Speaker

was Robert A. Bolt, president of the Boston Associated Board of Trade, who referred to his association, the organizations comprising it, its work, &c., mentioning some of the public questions (national and local) to which it is at present giving special attention. Mr. Bolt's address was listened to with interest, and closing with some excellent stories, he sat down amid much applause.

Admiral Sampson's Address.

Mr. Adams then presented Admiral Sampson as the hero of Santiago. The Admiral was given a great ovation when he arose to speak. He called attention to the fact that 150 years ago the British Government decided to impose an impost duty on the colonies for war expenses of the British empire. The parent Government prohibited the erection of any factories on this side of the Atlantic, especially for the making of Steel. Of course that was rebelled against, though the men who did the rebelling little recognized the significance of the act or knew how vastly it would affect the future of this continent. Then there probably was not a single pound of Steel made in all the colonies, while to-day there are 7,000,000 tons of Steel made in this country, to say nothing of the Iron which is manufactured, so that to-day the United States makes one-third of all the Steel produced in the whole world. He remembered the first Steel made in the United States, though not a very old man yet, and how porous and spongy and altogether miserable it was at that time. And yet to-day we manufacture the best guns and armor of any people in the world. The importance of widening and deepening the Boston harbor was briefly discussed by the speaker as a matter of grave and serious importance. It seemed to him that the people of New England ought to take it to heart and do their utmost to see that the work was done. It was a great

pity that the vast sums appropriated by Congress for river and harbor improvements should be frittered away in little rivers and rivulets in all parts of the country, when Boston and New York harbors and other large harbors should get the greater part of this money.

Rev. Edward A. Horton

was next introduced by the toastmaster as a comrade. He told how his father owned an Iron foundry and how as an ambitious youngster he undertook to handle one of the iron rods of the skimmer ladle, thinking of serving it, when some of the molten metal ran into his shoe, "and that," added the clergyman "is the only time I ever danced—with any success." The speaker gracefully alluded to his naval experiences in the civil war, when he not only realized the merit of the man behind the gun—the Parrot gun forward and the huge 15-inch Dahlgren amidships—on our gunboats at Fort Sumter and Fort Wagner, but the men who made the metal of those great guns. He thought the names of Dahlgren, Farragut, Dupont and Porter had made the Carolina, Florida and Alabama coasts richer than all the cotton and plantations within those Southern States. He told of the lasting merits of the New England training which made such successful Naval Secretaries as John D. Long, and such commanders as Dewey and Sampson, and closed with patriotic sentiments that were enthusiastically received.

Address of H. B. Lupton.

Henry B. Lupton of the American Steel & Wire Company was the next speaker, and spoke as follows:

William J. Bryan, when in New York a short time ago, either in a speech or an interview, said that several years ago, early in his career, he was engaged by the Democratic Committee for 30 days' work on the stump against Mr. Thayer, the Republican candidate for Governor. The campaign grew to be very personal, and he made many charges against Mr. Thayer, of which afterward he was rather ashamed. Governor Thayer was elected by an unusually large majority.

A few weeks afterward there was a banquet given at Omaha, and Mr. Bryan was invited to make a speech; he accepted, and then found that Governor Thayer—whom he had never met—was to be toastmaster. On the evening of the banquet there was no printed list of entertainers, and many that were called upon sang a song instead of giving a speech. Finally, the toastmaster, looking at his list, announced "William J. Bryan," and glanced up and down inquiringly. When Bryan arose Governor Thayer slowly turned his eyes upon him, and said: "Ah, Mr. Bryan! Do you speak or sing?" The choice of doing either not having been accorded me, I must confine myself to a few remarks.

When I was asked to make a speech at this meeting I thought to myself that it would be easy. I thought of the great abundance of material—Plymouth Rock and the Pilgrim Fathers, and the burning of the witches at Salem. The touch would of necessity be very light in deference to my audience, for I take it for granted that you are all descended from either the witches themselves or their stern persecutors. I might, too, speak on the famous Boston Tea Party, to say nothing of the minute men of Lexington and Concord Bridge, or the raw colonists who at Bunker Hill withstood the veterans of many a European battle field. And then I would talk of the moral and intellectual development of New England. While your worthy progenitors were conquering the wilderness—and incidentally killing off the original proprietors—they were at the same time building school houses and planting the seeds of the great universities which have made your section a Mecca for the youth of all this great land.

I had reached this point, when I discovered that I was only at the beginning of my speech. I had not yet come to your warriors and statesmen, to your poets, philosophers and authors, whose works constitute the great bulk of American literature; and, above all, I had yet to tell of the marvelous business acumen which, in spite of natural obstacles, has given New England her proud and intelligent supremacy in the manufacturing world.

All these things staggered me. I knew that I was expected to finish my speech within five or six hours, and here was material enough to last a week. I must choose one of these many subjects, and confine my remarks to that one, but in attempting this I find myself in the position of the ass between two bundles of hay, which were so exactly alike that he starved while trying to decide which one to eat first—for during all this time the hour was fast approaching when I must unbosom myself to you. I was at last, therefore, driven to the decision that I would offer you an apology instead of a speech, and merely say to you that I am glad once more to meet you all, and to express the confidence and esteem which the manufacturers entertain for customers like yourselves, and which I trust and believe animate you as well as ourselves.

The New England of to-day will maintain the prestige of the New England of the past. You have builded well upon the foundations laid by your sires, and while you have every reason to be proud of them, they, if they were here, would have equal reason to be proud of you.

Hon. John C. Linehan, Insurance Commissioner of New Hampshire, was the next speaker, and his remarks, while brief, were much enjoyed by the gathering.

The last speaker was T. James Fernley, the well-known secretary-treasurer of the National Hardware Association, who congratulated the New England Association on its success as an organization, and said that the National Association could be relied upon to do everything in its power to uphold the local association and the jobbing trade.

The evening was brought to a close at 11 o'clock by singing "Auld Lang Syne."

Trade Items.

W. K. PETERS, president of the Gleason-Peters Air Pump Company, 20 West Houston street, New York, sailed for Europe on the steamer "Etruria," March 17, and will spend three weeks in London and three weeks in Paris. He takes with him a complete line of Air Pumps for bicycles, automobiles, &c., including Storage Tanks for air, his object being to interest foreign buyers in this line of goods by showing full assortments of them. On his arrival he will arrange for a permanent exhibit of the goods of his company in both cities. In the meantime he can be communicated with, March 25 to April 15, care American Express Company, 3 Waterloo place, London, and Paris, April 15 to May 5, care American Express Company, 11 Rue Scribe.

ATTENTION is directed to the advertisement of the Chicago Scale Company, who manufacture a line of Sewing Machines, Scales and Fire Proof Safes. Sewing Machines are a line which are becoming increasingly popular with the Hardware trade, and merchants who have handled them express themselves as well pleased with the results.

GREENE, TWEED & CO., 17 Murray street, New York, have gotten out a *fac-simile* reproduction of their Champion Chain Pipe Wrench as a sample for salesmen's use, for distribution to the trade wherever dealers are interested in this product. It is drop forged and in every way similar to the merchantable article, except in size.

J. FINLEY SMITH, manufacturer of a full line of Brushes, formerly occupying the street floor and basement at 116 Chambers street, New York, has moved next door to No. 118, up one flight, where he now has his office, and carries a full line of samples but no stock. The reason for this is that he has doubled his plant at Essex, N. J., and built a new warehouse.

THE KILBOURNE MFG. COMPANY, Fair Haven, Vt., have purchased from the Palmer Hardware Mfg. Company, Troy, N. Y., all patents, trade-marks, machinery, &c., pertaining to that branch of their business, which covered the following goods: Sunshine and Jewel Shoe Sets, T. M. C., Sunshine, Jewel, Leo, Zim and No. 22 Daubers, Gem and Eclipse Mincers, Frost King and Standard Sidewalk Cleaners, Little Giant Ice Tongs, Champion and Vulcan Weeding Hooks, Economist Ice Axes and Utility Ice Picks. The Kilbourne Mfg. Company have a New York office at 90 Chambers street.

M. C. HANTON, 103 Chambers street, New York, has been appointed selling agent for New York and vicinity of the Grass Mfg. Company, Philadelphia, Pa. This company make Wood goods, such as Door Knobs, Base Stops, Tool Handles, Lemon Squeezers, Faucets and Bar Supplies. Mr. Hanton also has a new line of samples of Builders' Hardware made by the Taylor & Boggis Foundry Company, Cleveland, Ohio, whom he has long represented in New York, New Jersey and New England States.

WILLIAM B. VOLGER, manufacturer of the Johnston Pipe Wrench, formerly at 32 Vesey street, New York, has recently moved to 88 Chambers street. This Wrench is made in 10, 16 and 24 inch sizes, having in all a pipe capacity of ⅛ to 2½ inches, inclusive. It is drop forged from crucible steel.

New England Hardware Dealers' Association.

THE regular monthly meeting and dinner of the New England Hardware Dealers' Association was held at the United States Hotel, Boston, on Wednesday, March 14. At the close of the dinner the annual report of Secretary James A. Farless and the report of Treasurer Henry M. Sanders were received and ordered filed. These reports showed the association to be in a flourishing condition, an increasing interest having been manifested throughout the past year in both its business and social features. The income of the association has been more than sufficient to meet its expenses, and the treasurer reported a considerable cash balance on hand. The following was Mr. Farless' report:

Secretary's Report.

I am happy to state that the seventh anniversary finds our association in a prosperous condition. During the past 12 months we have had nine monthly meetings and 12 Executive Committee meetings. The attendance has always been good, and the business of the association has been conducted in a very satisfactory manner.

At the annual meeting in February J. Carlton Nichols was elected president, with a full list of officers and directors. Myron H. Tarbox gave some pleasant reminiscences of a visit to the National Cash Register Company of Dayton, Ohio.

At the March meeting J. Carlton Nichols having declined the presidency to which he was chosen in February, William D. Parlin of Natick, Mass., was elected as president for the ensuing year. Bion C. Pierce of Taunton, John H. Sayward of Haverhill and E. M. Richardson of Waltham were elected as first, second and third vice-presidents respectively. James A. Farless of Boston was elected secretary and Henry M. Sanders of Boston was elected treasurer.

The subject for discussion was "Is it advisable to continue as a social organization; if not, what can you suggest to make it a business organization?" At the April meeting the subject of "Local Associations" was thoroughly discussed. The speakers were Frank E. Thompson of New York, Hiram G. Janvrin, Samuel H. Thompson and D. Fletcher Barber. The May meeting afforded an opportunity to hear Charles E. Adams of Lowell, Herbert E. Jennison of Fitchburg and R. R. Williams of New York. All spoke upon the subject "Local Associations." The June gathering took place at Woodland Park, Auburndale, Mass., where the members with their ladies passed a most delightful afternoon. The principal speaker was Z. S. Holbrook of Cambridge. His subject was "Combinations." Charles Clark Adams of Boston entertained the company with recollections of his trip to London. Miss D. Emily Lucy, Miss Helen J. Jacobs and Charles McIlwain rendered some fine musical selections. At the September meeting the subjects for discussion were "Local Associations," "Hardware Prices" and "Price-Lists." Messrs. Burditt, Loomis, Tukey, Barber, Hunter, Decatur and Williams were the speakers.

At the October meeting we were entertained by G. E. Russell of Holyoke, who spoke about "Local Associations." Professor Cohoe of Harvard University made a very interesting address relative to "Iron and Its Combinations." The musical entertainment was furnished by Miss Lucy, violin; Miss Jacobs, piano, and Robert L. Van Buskirk, basso soloist.

At the November meeting the amendment to the By-Law, Article 1, Section 11, offered by Mr. Janvrin at the October meeting was adopted. The application for membership of the Hardware Social Club of Springfield was accepted. The speakers for the evening were Edward H. Rice, W. E. Blake and L. R. Putney. The remarks of all the speakers were entertaining.

The December meeting, what is known to us as "Ladies' Night," was a complete success. The entire programme (with one exception) was carried out satisfactorily. We were honored by the presence of Mrs. Julia Ward Howe, a lady of culture, who is known far and wide as a most delightful as well as an able speaker. Mrs. Howe gave an excellent address, giving reminiscences of Florence Nightingale. Unfortunately Miss Sarah A. Dixon was taken ill, so we had to postpone the pleasure of hearing her till some future time. The music was furnished by the Westminster String Trio, which gave excellent satisfaction. Webster R. Walkley of New York made one of his humorous speeches and recited his poem styled "Up With the Flag."

I take this opportunity to thank the editors of the Hardware magazines and their agents for the continuous interest they have shown in regard to this association. The reports of our meetings in some cases have been very lengthy, and we wish to put on record that we thoroughly appreciate their efforts.

New Members.

The following new members were elected: John Duncan, Boston; George S. Hedge, Rockland, Mass.; W. James Leigh, Higham, Mass.; Ernest C. Howard, Whitman, Mass.

The president announced the election of the following

Committees:

PRICING COMMITTEE.

D. F. Barber, Boston.
J. B. Hunter, Boston.
J. C. Nichols, South Boston.
Henry M. Sanders, Boston.
James C. Mackay, Brookline.

INVESTIGATING COMMITTEE.

George W. Burditt, Cambridgeport, Mass.
A. S. Morss, Boston.
E. M. Richardson, Waltham.

Hiram G. Janvrin, Boston, was elected auditor.

Charles Clark Adams,

the principal guest of the evening, was then introduced by President Burditt and entertained the company for about half an hour with interesting reminiscences of a visit to Belgium, describing in detail many of the notable sights of Brussels and neighboring cities, including a description of the present condition of the battle field of Waterloo. Mr. Adams exhibited a number of handsome photographs of places of interest described in his remarks, which latter were given closest attention and enjoyed by all those present. Mr. Adams was tendered a rising and unanimous vote of thanks.

Mr. Bigelow's Address.

At this point President George W. Burditt referred to the subject of discussion for the evening "The Advance of Prices and Its Effect on the Hardware Trade," and called upon Samuel A. Bigelow of the Bigelow & Dowse Company, Boston, who made the following address:

You have requested an answer to the question "Does the higher price of Hardware decrease the sale?"

I can only answer from a jobber's standpoint, and will say it does not as a whole, while it may in some particular cases. Taking all lines of Hardware, the advance has not been excessive. When compared with prices ruling in 1898 the total advance will hardly average 33 1-3 per cent. Many lines have not advanced, and there is no abnormal sale on such goods as compared with Wire Nails even.

The facts are, the advances have been accepted by all as a real benefit. Every one realizes that the prices during the depression paid no profit to any one. The jobbers, the retailers, the mechanics and the farmers all worked with meager pay if not at a loss. Adding a fair living pay for labor and a reasonable profit for the manufacturer, and the average prices of Hardware are not unreasonably high. I have in my office a copy of a bill sold in November, 1864. The price of Cut Nails was $9 per keg, Underhill Axes $20 per dozen and Putnam No. 8 Horse Nails were 42 cents per pound. Surely present prices are less as compared with these. Unquestionably higher prices increase the retailer's profits if he does not foolishly make sales based on old costs and thereby lose the present

GOLDEN OPPORTUNITY TO MAKE SOME MONEY.

To accomplish this result, I believe, is the prime object of this association. You come here to make friends

with each other, to advise with each other and to devise plans to lessen competition. It is pleasant to see the interest developed in your association, to note the full attendance at this meeting. Your secretary informs me there are present to-night 52 out of a membership of 75. Your membership is constantly increasing, and your good work should develop in proportion.

I venture the suggestion that to accomplish the best work you should have a

WELL PAID SECRETARY-TREASURER,

whose duty should be to work for the general good of all. Agreements for selling prices should be in his hands. If a member has cause of complaint against his neighbor it should be his duty to investigate and regulate such troubles. If you can find the right man I am sure the results of his work would pay you even if your present assessments were increased tenfold.

RELATION OF EXPENSE TO PROFIT.

One other subject I would call to your attention before closing. It is the relation of your expenses to your profits. This subject was brought to mind after reading an able paper read before the Ohio Hardware Association. You will all appreciate the importance of keeping a close watch of your expense account. Until within a few years, this necessity did not exist as it does to-day. Formerly the methods were crude as compared with those of the present. Then the proprietor with one clerk, in a small store poorly lighted and with a small stock usually placed on shelves in a chaotic state, dispensed Hardware in a new town at fabulous profits. Having no competition his customer as a necessity took the article that was nearest to what he wanted and went away satisfied. It is not so to-day. The modern Hardware store in comparison to the old is a palace, and the limit to the taste displayed is unbounded. With the modern store comes new expenses and less per cent. of gross profits. If a Hardware dealer is up to date and is determined to keep so, his expenses are bound to increase, but should be carefully watched.

Quoting from the paper above referred to, the average gross profit of the retail dealer on his sales is 20 per cent. His expenses, including help, rent, fuel, light, telephone, office supplies, insurance and incidentals, is 48 per cent. of his profits. With a capital of $5000 and a gross sale of $20,000 the gross profit would be $4000 and his net profits $2000. Any increase of expenses over 50 per cent. reduces the net so much.

THE SOLUTION OFFERED

is to add new lines. Bicycles and Sewing Machines and many other goods never before considered as legitimate Hardware have helped materially to supply this growing deficiency.

Other Remarks

were made by S. D. Balkam of Jamaica Plain, W. D. Parlin of Natick and E. M. Richardson of Waltham. Mr. Richardson spoke of the increasing competition in his city, saying that 20 years ago when he started his was the only store, now there are five.

Selling Prices.

President Burditt then distributed a neatly printed circular, requesting members to insert prices thereon without disclosing their identity. The substance of the circular was as follows:

Will you please mark your present selling price on goods below, without signature or location:

Nails, Wire, Base, Keg - - - .....
" Cut " " - - - .....
" Wire, Retail per Lb. - - .....
" Cut " " " - - .....
Zinc, Whole Sheet " " - - .....
" Cut Sheet " " - - .....
Flat Head Iron Screws, Dis. - - .....
Rope, Common Size, per Lb. - - .....

Later these were collected and by request were read, showing a wide divergence in all items. It is the intention of the president to average these prices and report them to the association, together with the highest and lowest, at the next meeting. This practical idea will result in some definite knowledge of retail prices, and is regarded as a forward step toward the desired end of more uniform prices in Boston and vicinity.

Competition.

W. E. Plumer of Somerville then spoke, referring to the competition of the large retailers or semi-jobbers, who by means of traveling men reach out beyond their own immediate vicinity, and said he thought that some action should be taken on this point. This brought out additional remarks from ex-President Parlin and Mr. Bigelow, who referred to the plan of uniting all the organizations throughout New England, or at least in the State of Massachusetts, as the most practical plan suggested to remedy this evil.

J. B. Hunter of Boston was then called upon and spoke earnestly on the competition of certain manufacturers of Builders' Hardware, whom he stated were going direct to the architect, builder and owner. He said that three times within the past week he had figured in direct competition with manufacturers, and in one instance he had the goods of the manufacturer on his shelves amounting to thousands of dollars. He asked how can manufacturers expect the retailer to handle his goods and pay his bills if they insist upon coming into his legitimate territory and taking away the business by means of prices which are so low as to afford the retailer absolutely no profit at all? He characterized this as an unwise and ruinous policy on the part of manufacturers, and suggested that only united, prompt and determined action on the part of retailers would remedy the evil.

Charles Clark Adams replied to Mr. Hunter, stating that he did not think it was the general policy of manufacturers to approach the consumer; at least, he said, it was not the policy of his house. Mr. Adams thought that no satisfactory answer to the question of the evening could be given at the present time, and urged retailers to be courageous, hold on and insist upon getting advanced prices and fair profits.

Coming Back Again

to the subject of the advance in prices and its effect, M. H. Tarbox of the Boston & Lockport Block Company thought that present prices would hold.

Joseph Williams, Jr., of Burditt & Williams thought that the advanced prices had curtailed building to some extent, and said he had observed that there had been less objection to the advanced prices on staples than he had expected. Referring to the probability of the Boston trade agreeing upon a schedule of prices, he said he did not consider this hopeless, and that if too much was not attempted at once something could be accomplished.

President Burditt closed the discussion and distributed applications for membership, suggesting that each individual member endeavor to obtain others.

The evening was very successful, both in a social and business way, and the new administration commenced with excellent prospects.

The Entertainment Committee for the April meeting are D. Fletcher Barber, Hiram G. Janvrin and Samuel H. Thompson.

We are advised that Frank E. Bundy, inventor of the Bundy Lamp and recently vice-president of the Frank E. Bundy Lamp & Supply Company, Elmira, N. Y., is no longer connected with the management of the company.

The trade will observe the advertisement of H. B. Rusler, Johnstown, Ohio, in which he calls attention to his Comet Sprayer, which is referred to as serving as a lawn and garden force pump as well as a fruit tree sprayer.

The annual banquet of the New York and New Jersey Hardware and Iron Association will be held in this city on Tuesday evening, March 27, at Muschenheim's Arena. Arena.

Interstate Retail Hardware Dealers' Association.

IN our last issue we referred to the formation of the Interstate Retail Hardware Dealers' Association at the conference held in Chicago, March 12-14, at which nearly 30 representatives of the trade in different States were present. With one exception all of these gentlemen were officially connected with State associations.

As already noted, Z. T. Miller, president of the Illinois association, was elected president, and H. A. Cole, president of the Iowa association, and H. T. Helgesen, president of the North Dakota association, vice-president and treasurer, respectively.

President Miller has since appointed R. F. Berry of Bloomington, Ill., secretary.

The following are the constitution and by-laws of the new association:

Constitution.

ARTICLE I.

NAME AND OBJECT.

Section 1. The name of this association shall be the Interstate Retail Hardware Dealers' Association.

Sec. 2. The object of this association shall be to promote the welfare of the retail Hardware dealers of the United States.

ARTICLE II.

Section 1. Membership in the Interstate Retail Hardware Association shall consist of the members of any State retail Hardware association which shall comply with the conditions and requirements imposed by the Interstate Association and meets with the approval of the Executive Committee.

Sec. 2. Voting membership of the Interstate Retail Hardware Association shall consist of two delegates elected by each of the State associations affiliated with the Interstate Association, who shall represent the general membership of such State.

Sec. 3. When but one delegate is present from any State association, he shall be entitled to cast the vote of his State.

ARTICLE III.

OFFICERS.

Section 1. The officers of this association shall be a president, a vice-president, a secretary, a treasurer and an Executive Committee, which shall be composed of the president, vice-president and five members, to be elected annually by the association, no two of whom shall be from the same State.

Sec. 2. The president and vice-president shall be elected by ballot at the annual meeting of the association and shall hold office until their successors are elected and qualified.

Sec. 3. The treasurer and the secretary shall be appointed and may be removed by the Executive Committee. The treasurer shall receive the funds of the association and disburse them through vouchers signed by the president and secretary.

Sec. 4. The secretary shall be under the direction of the Executive Committee and his duties shall be assigned by them.

Sec. 5. The Executive Committee shall pay the secretary and treasurer such salary as may be deemed necessary, and a sufficient bond shall be required from the secretary and treasurer, said bonds to be paid for by the association.

Sec. 6. In case of a vacancy in any of the offices of this association, the same shall be filled by the Executive Committee until the next annual meeting. The Executive Committee shall appoint an Auditing Committee to examine the books of the treasurer and secretary, and report their condition at the annual meeting of the association. A majority of the Executive Committee shall constitute a quorum for the transaction of business.

ARTICLE IV.

Section 1. The regular meeting of the association shall be held annually, at such place as may be designated by the association at its previous annual meeting, and at such time as called by the Executive Committee.

Sec. 2. The Executive Committee is subject to the call of the president.

Sec. 3. It shall be the duty of the president, or, in case of his inability to serve, of the vice-president, to exercise supervisory control over the affairs of the association, and preside at all meetings of the Executive Committee, and to carry out and enforce all measures adopted by the association calculated to improve the condition of the Hardware business.

Sec. 4. The presiding officer shall appoint at the annual meeting a sergeant-at-arms, who shall perform the usual duties of such officer.

Sec. 5. Amendments to the constitution and by-laws may be made at any regular meeting by a vote of at least two-thirds of the membership present.

By-Laws.

ARTICLE I.

The finances of the Interstate Retail Hardware Dealers' Association shall be provided as follows for the first year: Each State association shall be assessed, if necessary, $1 per capita for each member of said association, to be levied and collected from the local Executive Committee of the States embraced in this association quarterly.

ARTICLE II.

The Executive Committee shall limit the expenses of the association to the funds on hand.

ARTICLE III.

State associations members of this association shall in all official correspondence use official stationery bearing the name of the Interstate Association, together with the name of their State association as a branch thereof.

ARTICLE IV.

All grievances that the various State associations are unable to settle satisfactorily or desire to have submitted to the Interstate Association shall be turned over to the president of this association for adjustment in the usual way.

ARTICLE V.

At meetings of the Executive Committee the actual transportation expenses and $3 per day shall be paid each member by this association.

ARTICLE VI.

Three members of the Executive Committee shall constitute a quorum for the transaction of business at any meeting.

ARTICLE VII.

Representatives of a majority of the States affiliated with the Interstate Association shall constitute a working quorum at the annual meetings.

Price-Lists, Circulars, &c.

THE WILKE MFG. COMPANY, Anderson, Ind.: Porcelain Refrigerators. Catalogues illustrate these goods in a variety of styles and sizes. The company also furnish estimates on any size or style of Refrigerator for hotels, grocers, meat markets, private residences, &c.

PHENIX MFG. COMPANY, Milwaukee, Wis.: Illustrated catalogue. This is devoted to Window Screens, Screen Doors, Screen Window Hangers, and Screen Hardware.

GLEASON-PETERS AIR PUMP COMPANY, 20 West Houston street, New York: Illustrated catalogue, envelope size, of Bicycle Pumps in great variety, from kit size to motor Pumps and Storage Tanks, together with Valves, Supplies, Connections, and similar appliances. Also an Automobile Tire Pump catalogue, showing many kinds of Air Pumps and appliances of this character.

W. L. MARBLE, Gladstone, Mich.: Illustrated catalogue of Sportsmen's and Hunters' Specialties, showing five styles of Guarded Safety Pocket Axes from 11 inches long and 18 ounces weight to 12 inches long and 24 ounces weight; Automatic Gaff Hooks, Water Proof Match Box, and Water Proof Compass and Bracket for attachment to clothing, &c.

ILLINOIS CUTLERY COMPANY, Decatur, Ill.: Kitchen Specialties. An illustrated pamphlet shows Tin Churn, Combined Grater and Slaw Cutter, Bread and Cake Knives, Baking Pans, Mincing Knife, Meat Tenderer, Kettle Scraper, Can Opener, Spoon, Carpet Stretcher, &c.

A new Hardware store, under the title of the Echols-Smith Hardware Company, will be opened at Birmingham, Ala., on April 1. Sam. T. Echols, president, was connected with the Moore & Handley Hardware Company for several years. J. Molton Smith, vice-president, was also with the same house for some time, while the secretary-treasurer, T. Haynes Watts, was for a long time with the Livermore Foundry & Machine Company, Memphis, Tenn. It is the intention of the company to do a jobbing and retail trade. A specialty will be made of Mining, Furnace and Mill Supplies.

The Iron Age Brass-Bound Price Cards.

A LINE of Price Cards embodying entirely new features, capable of great elasticity in use and management, is now offered to the trade by the publishers of *The Iron Age*. The Price Cards are the result of a careful study of the requirements of the trade, and in view of their convenience and wide range of adaptation and their quality, it is anticipated that they will be regarded with approval by those who use this method of marking prices in the Hardware store.

THE ASSORTMENT.—The Cards, nine in number, are of various sizes, suitable for more or less extended lines of goods, and for use in different parts of the store. In size the Cards range from 3 x 7 inches to 10 x 12 inches, as follows, the width being first given:

No.	Size. Inches.	Price each.
100	4 x 8 with Column Headings	$0.15
101	4 x 16 with Column Headings	.25
102	4 x 13 with Column Headings	.20
103	3 x 7 with Column Headings	.10
104	7 x 4 with Column Headings	.15
105	11 x 8 without Headings	.25
106	8 x 12 with Column Headings	.30
107	5 x 4 with Column Headings	.10
108	10 x 12 without Headings	.35

All these Price Cards are furnished with blank space at top for name of article, for which the Iron Age Hardware Price Card Pasters are provided.

THE IRON AGE HARDWARE PRICE CARD PASTERS (*on gummed paper*), with names of more than 200 Hardware Articles, with Column Headings and Side Headings..... Price $0.25

DESCRIPTION.—The Cards are made of stiff cardboard, which is covered on both sides with Crane's Bond Paper, appropriately ruled, thus rendering both sides of each Card available for use. The Cards have a neat and substantial brass binding, and are provided with a brass eyelet at the top for hanging. The paper is of a quality to permit of frequent pencil erasures, and the Cards, as a whole, are of a character designed to withstand the constant and trying usage to which they may be subjected.

THE RULING.—The ruling gives ¼-inch spaces between the horizontal lines, and 7-16-inch spaces between the perpendicular lines. This is regarded as giving sufficient room for markings.

IN REGARD TO HEADINGS.—The Cards are divided into two classes, those having printed headings to the columns and those with no printing upon them. Cards with printed headings to the columns are Nos. 100, 101, 102, 103, 104, 106 and 107, and are shown in Figs. 1, 2, 3, 4, 5, 6, 7 and 11. These headings are as follows:

No. or Size Retail Special Cost List

In no instance is the name or description of goods printed on the cards.

PRICE CARD PASTERS.—Accompanying the Price Cards is a pamphlet, Fig. 12, containing names of more than 200 articles, printed on gummed paper. The gum is of a superior quality, and, by moistening, adheres more tenaciously to the Cards than if ordinary mucilage were used, besides being neater and more convenient and easy to handle. The following represents the size and style of type used for the Pasters:

SCREW DRIVERS

The Pasters are designed to be cut from the book and put on the Cards, as shown in the illustrations. Where it has been deemed necessary two, and in some cases three, names of the same articles have been provided in the book.

The pamphlet also contains a number of Pasters, such as the following:

No. or Size Retail Special Cost List

which are intended for use on Cards without headings, or for use in any cases where it is desirable, especially on the larger Cards to start new headings.

No. or Size
Retail
Special
Cost
List

In some cases side headings are convenient, and for this purpose Pasters like the accompanying are furnished. These are useful principally where it is desirable to have a long line of numbers or sizes run across the Price Card, as shown in Figs. 9 and 11.

METHOD OF USE.— The printed headings at the top of the Cards permit putting a good deal of descriptive matter underneath the word "Article," as in Figs. 1, 2, 3, 4 and 6. This is to be followed by the number or size, retail price, special or quantity price, cost, and list price of the goods. It will be noticed that the retail price comes directly after the number or size, and that the cost and list prices, being the least important information when retailing goods, are placed last.

Above the body of the Card, in addition to the Paster giving the name of the goods, is ample space for date, discount or other desired memoranda. The description and number or size of the goods would naturally be written in ink, as they are not subject to frequent change, while prices, cost and list would be put in with pencil so that they can be erased when changes occur. The paper covering the Cards is, however, of such quality as to permit erasure of ink.

In some instances, as explained above, there will be room on a Card for more than one kind of goods, as shown in Fig. 11. This is especially the case on the larger Cards. Such conditions are provided for in the book of Pasters by a large number of headings, described above, which correspond in size and type with the headings printed on the Cards, and are designed to be placed where most convenient.

In other cases it will be found convenient to have Pasters with the foregoing particulars at the side of the Card rather than across it. For this purpose the Side Head Pasters shown above may advantageously be used. This arrangement is illustrated in Figs. 9 and 11, but can obviously be often used with good effect on other Cards.

Illustrations of Price Cards in Use.

We give below examples of the way in which the Price Cards may be filled out for use in the Hardware

BELTING

ARTICLE	No. or Size	Retail	Special	Cost	List
	1"	.07	.06 3/10	4 4/10	.14
	1 1/4"	.09 1/2	.08 4/10	5 3/10	.19
Leather	1 1/2"	.12	.10 5/10	6 3/10	.24
	1 3/4"	.14 1/2	.13	7 2/10	.29
List of	2"	.17	.15 3/10	8 3/10	.34
Nov 15th '99	2 1/4"	.19 1/2	.17 1/2	9	.39
Manufacturers	2 1/2"	.21 1/2	.19 1/2	10 4/10	.43
Association.	2 3/4"	.24	.22	11 3/10	.48
	3"	.26 1/2	.24	12	.53
"Hoyt"	3 1/2"	.31 1/2	.28	14	.63
Reg. Short Lap.	4"	.36	.33	16 5/10	.72
Discount	4 1/2"	.41	.37	18 3/10	.82
10 & 5 %	5"	.46	.42	19 4/10	.91
Delivered.	5 1/2"	.50	.45	20	1.01
Doubles	6"	.55	.50	22	1.11
Double price	7"	.65	.59	26 4/10	1.30
of Single.	8"	.74	.67	29 6/10	1.48
	9"	.83	.75	33 1/2	1.67
	10"	.93	.84	37	1.85
	12"	1.11	1.00	44 1/2	2.22
	14"	1.30	1.17	52 4/10	2.59

Fig. 1.—Price Card No. 100 (Two thirds Size).

Store, a matter in which we have been greatly assisted by information and suggestions from progressive Hardware merchants.

Fig. 1 represents Price Card No. 100, 4 x 8 inches in size. The headings of columns are printed on the Cards, but the word "Belting" is a Paster from the pamphlet

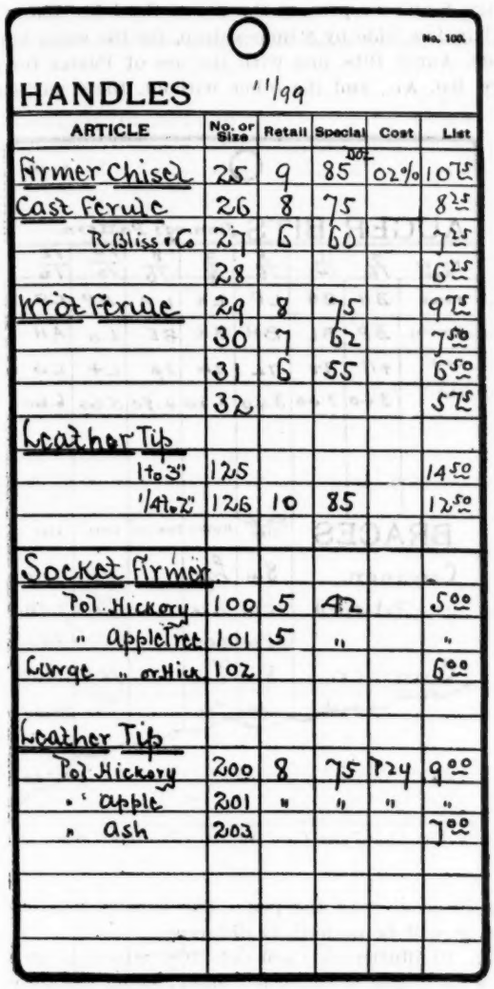

No. 100.
HANDLES 11/99
ARTICLE | No. or Size | Retail | Special | Cost | List
Firmer Chisel | 25 | 9 | 85 | 02% | 10 25
Cast Ferule | 26 | 8 | 75 | | 8 25
R Bliss & Co | 27 | 6 | 60 | | 7 25
| 28 | | | | 6 25
Wrot Ferule | 29 | 8 | 75 | | 9 75
| 30 | 7 | 62 | | 7 50
| 31 | 6 | 55 | | 6 50
| 32 | | | | 5 75
Leather Tip | | | | | |
1 to 3" | 125 | | | | 14 50
1/4 to 2" | 126 | 10 | 85 | | 12 50
Socket Firmer | | | | | |
Pol. Hickory | 100 | 5 | 42 | | 5 00
" Applewood | 101 | 5 | " | | "
Curve " or Hick | 102 | | | | 6 00
Leather Tip | | | | | |
Pol Hickory | 200 | 8 | 75 | 524 | 9 00
" Apple | 201 | " | " | " | "
" Ash | 203 | | | | 7 00

Fig. 2.—Price Card No. 100 (Two-thirds Size).

of The Iron Age Hardware Pasters. Under the heading "Article" information useful to salesmen is given in regard to list, cost, &c. The selling prices, regular and

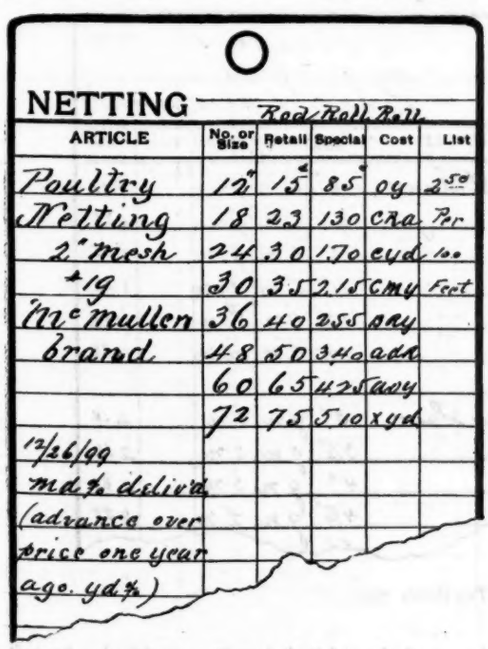

NETTING Rod Roll Roll
ARTICLE | No. or Size | Retail | Special | Cost | List
Poultry Netting | 12" | 15¢ | 85¢ | oy | 2 50
| 18 | 23 | 130 | C Rd | Per
2" mesh | 24 | 30 | 170 | cyd | 100
#19 | 30 | 35 | 215 | C My | Feet
Mc Mullen | 36 | 40 | 255 | oay |
brand | 48 | 50 | 340 | adx |
| 60 | 65 | 425 | axy |
| 72 | 75 | 510 | xyd |
12/26/99
md 5% delivd
(advance over
price one year
ago. yd 5%)

Fig. 3.—Price Card No. 100 (Two-thirds Size).

special, are marked in plain figures, the cost being given in cipher. This Card, which represents the methods of an excellent merchant, shows the good use which can be made of the space under "Article," which is often wasted.

Fig. 2 represents Price Card No. 100, 4 x 8 inches, and gives prices on a line of Chisel Handles. The prices, it is noted, were revised in November. The special prices are per dozen and not for each single article, as are the regular prices. The heading is in this case put at the

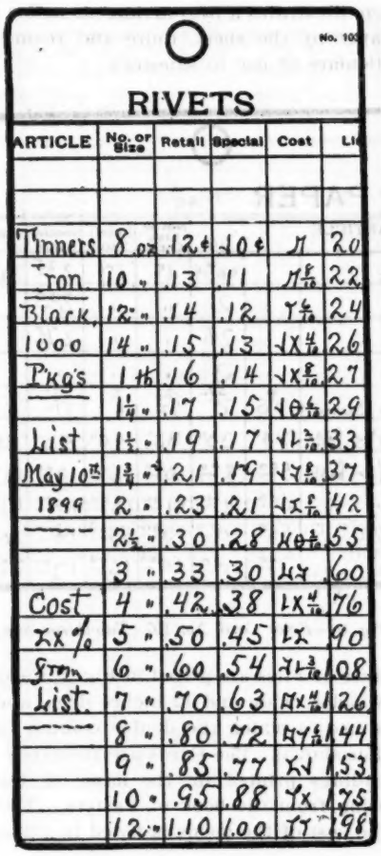


Fig. 4.—Price Card No. 103 (Two-thirds Size).

side of the Card, principally as a matter of taste, but it permits more room for any desired markings in the space at the top of the Card.

Fig. 3 also represents Card No. 100. It contains a modification of the column headings indicating that the Poultry Netting is sold by the rod at retail, while the

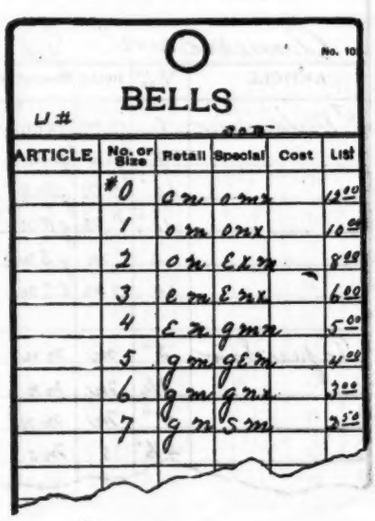


Fig. 5.—Price Card No. 103 (Two-thirds Size).

special prices and cost are by the roll, the list price being by the 100 feet. The size, mesh, number of wire and brand are given in the column devoted to description of article; also the discount on the date mentioned and the memoranda of the advance in cost within a year.

Figs. 4 and 5 represent Card No. 103, which is 3 inches wide and 7 inches long. It shows the use to which so small a Card may be put. The column headings are printed on the Card, the words "Rivets" and "Bells" being Pasters. Fig. 4 shows that even the narrow space under the heading "Article" may be used to good advantage.

Fig. 6, Card No. 107, which is 5 inches wide and 4 inches deep, illustrates a neat arrangement for the prices of Sandpaper by the sheet, quire and ream. It gives some particulars of use to salesmen.

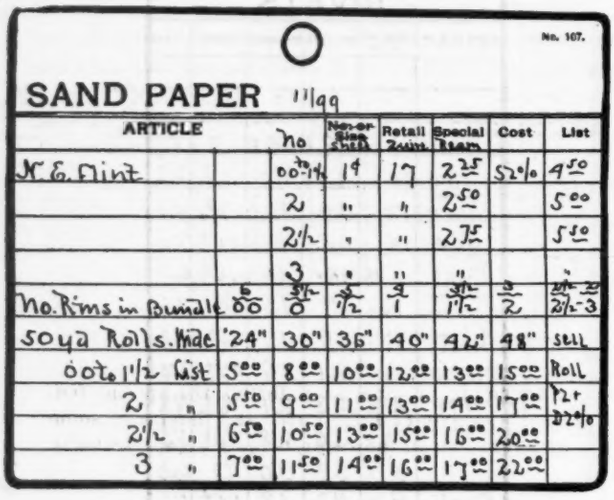


Fig. 6.—Price Card No. 107 (Two-thirds Size).

Two makes of Files are priced in Fig. 7, Card No. 106, which is 8 inches wide and 12 inches deep, and the advantageous use to which the double column Cards can be put is thus shown. The Cards are furnished with the column headings printed in, the name of the article, "Files," being from the book of Pasters. The manner in which the cost of the goods is noted in cipher will be seen.

The Cards which are furnished with ruling but without any printing are Nos. 105 and 108, the use of which is illustrated in Figs. 8, 9 and 10. The horizontal lines are the same as on the other Cards, but the perpendicular ruling with 7-16-inch space extends across the entire width of the Cards. These Cards are especially adapted to prices of such goods as Bolts, Screws, Auger Bits, &c., where each size and price requires comparatively small space. They also permit of a large flexibility of arrangement and the giving each line of goods such space as may be required. By means of the Pasters for the names of the articles and for the headings of columns or side heads they can with a little care be advantageously used.

Figs. 8 and 9 represent the use of Card No. 105, which is 11 inches wide by 8 inches deep, for the same kind of goods, Auger Bits, one with the use of Paster for size, price, list, &c., and the other without, these particulars being inserted with the pen. The arrangement of the items, it will be noticed, is different.

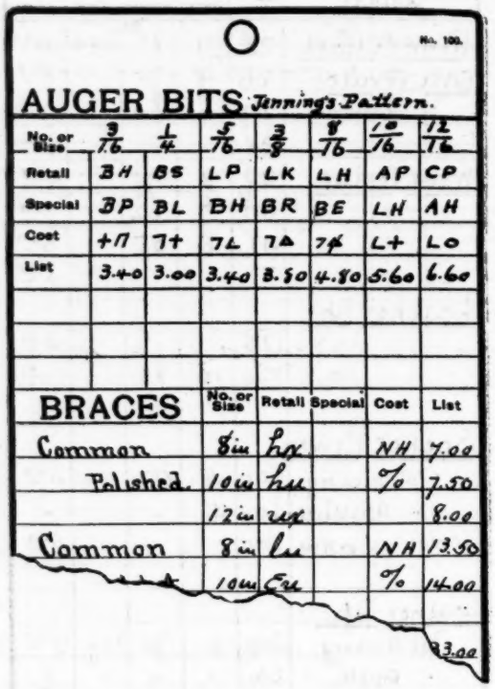


Fig. 11.—Price Card No. 100 (Two-thirds Size).

Fig. 10 illustrates Card No. 108, which is 10 x 12 inches deep, and is furnished blank, being simply ruled and without printing of column or other headings. "Carriage Bolts" and "Tire Bolts" are Pasters, and also the headings of the columns "Size," "Retail," &c. The item of cost is, it will be seen, omitted from the heading, and the "List" heading could also be left out if desired. The arrangement shown allows for five columns of prices, with spaces dividing the different diameters of Bolts. The Card thus arranged accommodates 189 sizes on each side. On the side of the Card, a

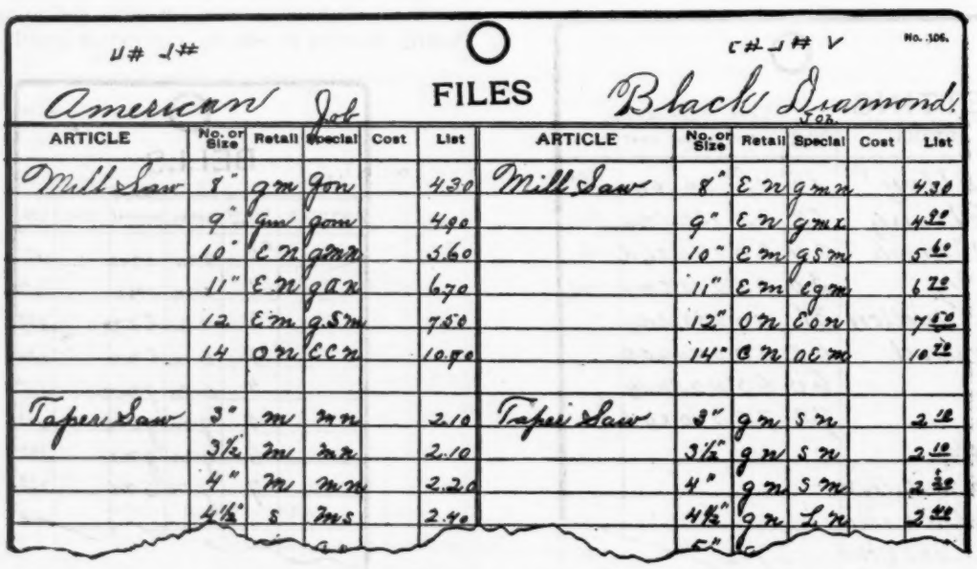


Fig. 7.—Price Card No. 106 (Two-thirds Size).

portion of which is shown, are listed Common and Philadelphia Eagle Carriage Bolts, also Common and Philadelphia Tire Bolts. Similar arrangements of Sleigh, Machine, Stove, Plow, Elevator and other kinds of Bolts

similar printed headings of columns in connection with Braces. The column headings printed in the upper part of the Card are covered by blank paper to permit sizes of Bits to be written in, as shown.

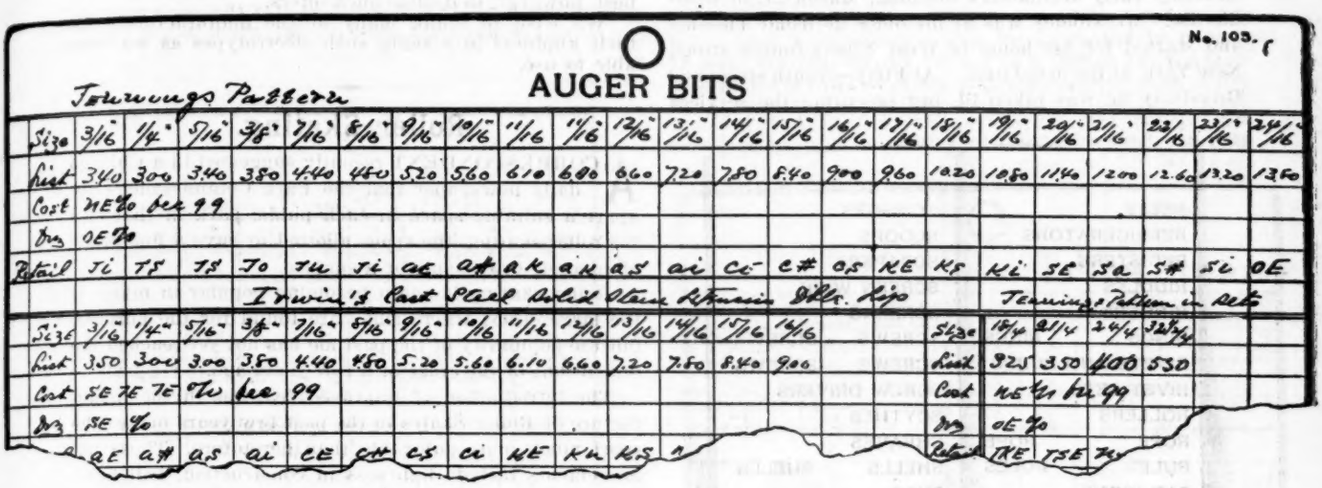


Fig. 8.—Price Card No. 105 (Two-thirds Size).

can be put on the other side of the Card if desired. A similar treatment can obviously be given to other kinds of Bolts, Screws and kindred lines.

The foregoing explanation indicates the special features of this system of Price Cards and illustrates some of the ways in which they may be used. The ingenuity

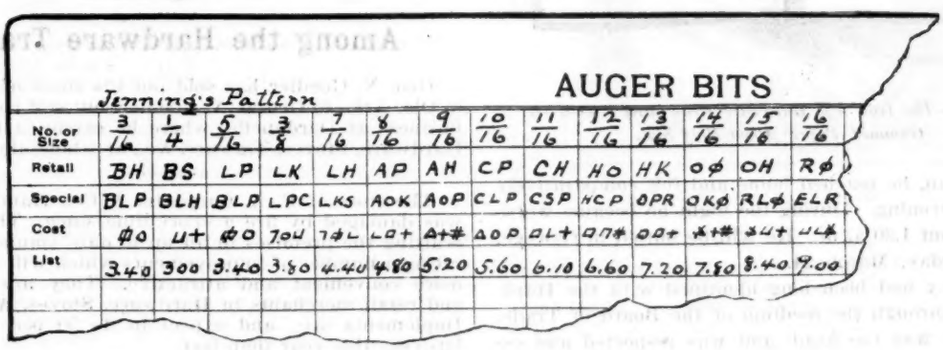

AUGER BITS
Jennings Pattern
No. or Size
Retail
Special
Cost
List
3/16 1/4 5/16 3/8 7/16 8/16 9/16 10/16 11/16 12/16 13/16 14/16 15/16 16/16
BH BS LP LK LH AP AH CP CH HO HK OH RØ
BLP BLH BLP LPC LKS AOK AOP CLP CSP HCP OPR OKØ RLØ ELR
List 3.40 3.00 3.40 3.80 4.40 4.80 5.20 5.60 6.10 6.60 7.20 7.80 8.40 9.00

Fig. 9.—Price Card No. 105 (Two-thirds Size).

Fig. 11 illustrates the way in which two classes of goods can be accommodated on one Price Card and the manner in which several Pasters are employed. In this

and experience of merchants will suggest other methods. The legibility of the printed names of goods and the headings, in comparison with written ones, and the neat

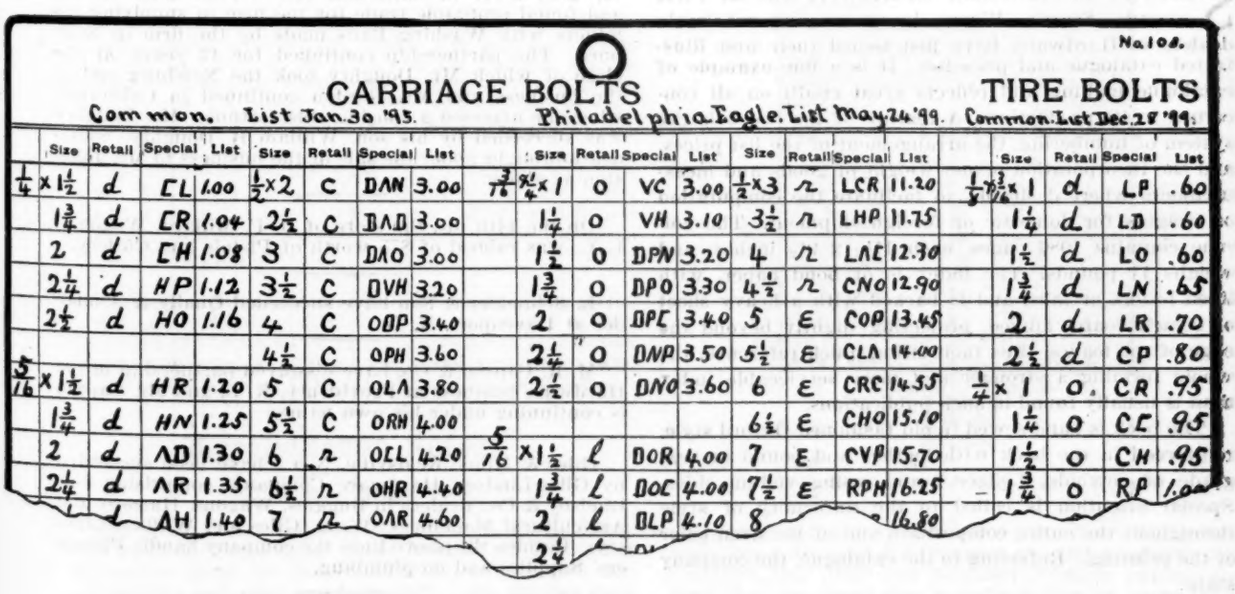


Fig. 10.—Price Card No. 108 (Two-thirds Size).

example pasters are used for the names of articles, "Auger Bits" and "Braces;" the printed side headings, "No.," "Retail," &c., under Auger Bits; also for the

appearance and durability of the Price Cards, in view of the fact that they are brass bound, are features that will commend them to merchants.

Death of James H. Goldey.

JAMES H. GOLDEY, president of the Hardware Board of Trade, 4 Warren street, New York, died suddenly early Wednesday morning, March 21, of heart disease. Mr. Goldey was at his office as usual Tuesday and started for his home in West Ninety-fourth street, New York, at the usual time. At Fifty-seventh street and Broadway he was taken ill, but procuring the services of a physician, he reached home and felt comparatively well in the evening. During the night he became worse and died about 1.30 a. m. He will be buried in Oswego, N. Y., Saturday, March 24.

Mr. Goldey had been long identified with the Hardware trade through the medium of the Board of Trade, of which he was the head, and was respected and esteemed by those with whom he came in contact.

Fig. 12.—The Iron Age Hardware Price Card Pasters (on Gummed Paper) About Half Size.

Seattle Hardware Company's Catalogue.

SEATTLE HARDWARE COMPANY, 819-823 First avenue, Seattle, Wash., importers and wholesale dealers in Hardware, have just issued their first illustrated catalogue and price-list. It is a fine example of catalogue making and reflects great credit on all concerned in its production. A feature of the book is the system of numbering, the arrangement of the list prices, and the incorporation of net weight of goods and measurements where desirable, to facilitate the computation of freights for domestic or foreign shipment. The volume contains 1086 pages, each 11½ x 9½ inches, and weighs 11 pounds. The index is of bond paper, with linen letters or tabs, and is backed with a heavy sheet of stencil board, hinged, projecting slightly beyond the edge of the leaves, thus facilitating quick reference, the whole forming a stronger and more serviceable index than is usually found in such publications.

The book is hand sewed in old fashioned Oxford style, reinforced in the back with leather and bound in best grade of cowhide, Ledger brand, using vellum sides. Special attention is called to the unformity of style throughout the entire composition and of the even color of the printing. Referring to the catalogue, the company state:

This catalogue is the first work of the kind issued in this State and we submit it to you as a Washington production, the paper being made in our State, and the compiling, composition, press work and binding all being done in Seattle.

We will leave you to judge of its merits in comparison with the catalogue of other Hardware jobbers. During the progress of the work we have received voluntary offers from several manufacturers to contribute toward the expense of illustrating their goods. We have thought best, however, to decline such offers.

We wish to thank many of the manufacturers for their kindness in loaning such electrotypes as we were able to use.

Roller Skating.

A CORRESPONDENT recently suggested in a Chicago daily newspaper that the Park Commissioners set apart a suitable space in each public park in that city for roller skating, the space allotted to have a fine grade of concrete or cement for a surface.

Roller skating is again becoming popular in many of the large cities, where rinks are found for the purpose, but the popularity of the pastime has not yet reached the dimensions of the craze of a few years ago.

The introduction of improved features in the manufacture of Roller Skates in the past few years makes the sport much more enjoyable than heretofore. These improvements include lightness in construction, ball bearings and the introduction of two wheeled Skates.

The vigorous exercise, in the open air, which necessarily accompanies roller skating, is regarded as very healthful, and it provides a pleasing pastime for youth during seasons unsuitable for some other outdoor amusements.

Among the Hardware Trade.

Geo. N. Goodier has sold out his stock of Hardware in Ola, Ark., to George N. Goodier, but still continues his business at Dardanelle, where he carries a full line of Hardware, Stoves, Tinware, &c., at wholesale and retail.

The store of F. A. Carpenter & Co., Hamilton, Can., was damaged by fire a short time since. The firm are refitting the premises in an up to date manner, incorporating a number of improvements which will make them more convenient and attractive. They are wholesale and retail merchants in Hardware, Stoves, Agricultural Implements, &c., and expect to do 50 per cent. more business this year than last.

The old stand of Charles H. Doughty, 112 Water street, Newburg, N. Y., has been purchased by Robert Johnston, who will continue the business, which was founded in 1844 by John Gordon and Mr. Doughty under the style of John Gordon & Co. On the breaking out of the gold fever in California Mr. Gordon went thither and found profitable trade for the firm in supplying the miners with Washing Pans made by the firm in Newburg. The partnership continued for 12 years, at the close of which Mr. Doughty took the Newburg end of the business and Mr. Gordon continued in California, where he amassed a considerable fortune. Mr. Doughty was succeeded by his son, William B. Doughty, whose death brought about the sale of the business to Mr. Johnston as above.

On the 14th ult. the store of O. F. Millard, Wagoner, I. T., was robbed of $75 worth of Pistols and Cutlery.

L. Schneider & Son have succeeded Qually & Schneider at Davenport, N. D.

M. R. Capron & Co. have dissolved partnership in the Hardware business at Providence, R. I., and Mr. Capron is continuing under his own name.

Giles & Mims, Reidsville, N. C., have been succeeded by Giles-Lindsey Hardware Company, comprising Jos. Lindsey & Co., dealers in Buggies, Wagons, Harness and Agricultural Machinery; W. M. Giles and William Lindsey. Besides the above lines the company handle Plumbers' Supplies and do plumbing.

The store of M. A. Heegaard & Co., Watertown, S. D., was partially destroyed by fire a short time since. The loss on stock by fire and water was $2500 and on building about $700, all fully insured and satisfactorily adjusted.

Aasgaard & Ramsey have succeeded to the Hardware business conducted by the former at Twin Valley, Minn. Mr. Aasgaard succeeded Aasgaard & Door, who had removed from Syre on January 1.

Heath Hardware Company, Monroe, N. C., in both their jobbing and retail departments, report a larger business during 1899 than any former year, necessitating the renting of a separate building for storage.

A. E. Sloan, Lakelands, Fla., has admitted J. J. Ellis-ton to partnership in his business under the style of A. E. Sloan & Co.

John W. Holmes & Son, Alma, Mich., have succeeded John W. Holmes at the old stand.

Traylor, Peterson & Motley, Danville, Va., have been succeeded by Piedmont Hardware Company, a change in style only, brought about in connection with an increase in capital stock and the desire for a shorter and more convenient title. The officers of the corporation are A. W. Traylor, president; G. P. Peterson and Spencer James, vice-presidents, and B. S. Motley, secretary and treasurer. The company do a wholesale and retail business, which has increased to such an extent that more capital was necessary. They carry both Heavy and Shelf Hardware, and also have a well equipped tin shop.

Tuxhorn Bros., Edwardsville, Ill., have incorporated for the purpose of associating with them in business J. C. and H. W. Kardell, who were formerly salesmen in their employ, and the style is now Tuxhorn Bros. Hardware Company. The officers are C. F. Tuxhorn, president; J. C. Kardell, vice-president; A. G. Tuxhorn, secretary and treasurer, and H. W. Kardell, manager of sales department. They have lately added a Harness department.

H. A. Mustard's Hardware stock at Ute, Iowa, has been combined with N. J. Ullrich's general merchandise stock under the style of Ullrich & Mustard.

Hardy Greenwood, merchandise broker, San Antonio, Texas, advises us that he is desirous of securing agencies for the sale of staple Hardware to the trade of San Antonio and surrounding towns.

Freeman & Bachtell have succeeded Rehenfohl & Felton, Waterloo, Iowa. Besides handling Hardware, Stoves, &c., they manufacture the Sunshine Acetylene Gas Generator and also conduct a general job shop. They are expecting soon to put in a full line of Acetylene Gas Fixtures and do gas, steam and water fitting.

The Tallant Hardware Company have purchased the stock of the Sherman Hardware Company, Clarinda, Iowa. The store has been rearranged and its appearance greatly improved, and it is now filled with goods from basement to roof, the Harness stock of Frank J. Tallant having been added to the stock of the Sherman Company.

J. B. Green of Oelwein, Iowa, has purchased the Hardware stock of E. M. Healey & Co., Ackley, and is continuing at the old stand. Mr. Healey will engage in business with his father, Geo. W. Healey, who has succeeded the firm of Christman & Healey, Dubuque.

L. S. Sprietsma, formerly with J. A. Vanderveen, and W. G. Van Dyke, formerly in the grocery line, have formed a partnership in the Hardware, Stove and Sporting Goods business at Holland, Mich., under the style of Van Dyke & Sprietsma.

A. Wooley of Hammond, Ind., has removed his Hardware stock to Pontiac, Ill., where he has bought a half interest in the business of E. Cook, dealer in Hardware, Stoves, Furnaces, &c. The two stocks will be consolidated and the style of the firm will be Cook & Wooley.

Miscellaneous Notes.

The Heller Shelf Box.

The Heller Box Company, Montclair, N. J., illustrate their steel hardware shelf boxes in their advertisement on another page. In the construction of this box the steel bottom and sides are imbedded in the wooden ends as shown, and are secured by steel brads driven from the inside through the wood and metal, resulting in boxes having no nails on the outside to work out and mar the shelving.

Adjustable Milk Pail Holder.

W. P. Bartholow, Yale, Iowa, has put on the market an adjustable milk pail holder. It is made from one piece of No. 7 coppered wire, and is constructed so as to enable the operator to hang the pail between the knees and hold it there while milking, whether the pail is full or empty. On one end of the wire that forms the loop that goes around the pail an eye is formed, while the other end is threaded. The threaded end is passed through the eye, and by the aid of a thumb nut the loop is adjusted to the size of the pail. On opposite sides of the hoop the wire is twisted, forming arms which rest on the knees of the operator. It is pointed out that the loop can be adjusted to fit any pail, that the device holds the pail out of the dirt, and that a cow cannot get her foot into a pail thus held as easily as when the pail is on the ground.

The Freeport Parlor Door Hanger.

Arcade Mfg. Company of Freeport, Ill., are putting on the market the hanger shown in the accompanying cuts. It is made of steel and malleable iron to prevent breakage. The wheels run on a single steel track and are made of solid vulcanized fiber, so that no metal comes in contact with the track, and makes, it is remarked, the hanger as nearly noiseless as it is possible to do.

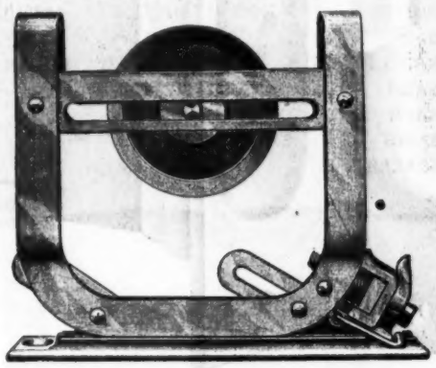


Fig. 1.—The Freeport Parlor Door Hanger.

The sliding base with the automatic lock is referred to as making the hanger more convenient. In hanging the doors it is not necessary to remove the adjusting screws, as when the base plate is screwed to the door the door is coupled to the hangers by sliding the parts together, when the gravity lock falls and locks them together. It is explained that the door may be as readily detached at any time without removing the screws by raising the gravity lock and slipping the hanger from the base plate. A sectional view is given in Fig. 2 showing the position of the hanger when attached to the door and on

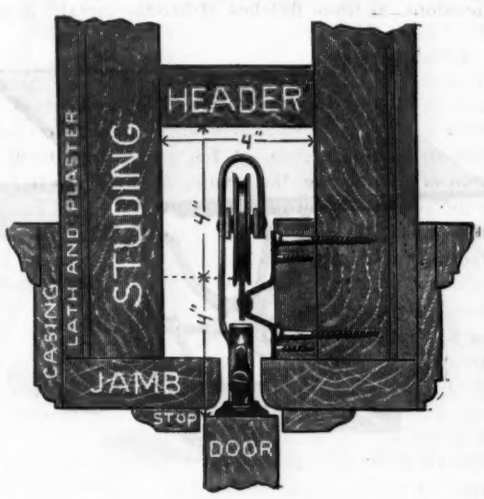


Fig. 2.—Sectional View, Showing Hanger in Position.

the track. Among other points of excellence the manufacturers state that the hangers are independently adjustable, that they are attached without cutting the door, that the center stop is secured directly to the track and is readily released by the aid of a screw driver and moved along the track, so that the door may be run out to get at the rear adjusting screw, and that the stop is provided with a sound deadening bumper.

Stable Sliding Door Locks.

Sargent & Co., New Haven, Conn., and 149-153 Leonard street, New York, have just put on the market the stable sliding door lock for stable and fire engine door use, here shown half size. The lock is extra heavy, has heavy bronze metal inside work with bronze metal front and strike, an important feature being the protection afforded the sides of horses when passing in or out. The

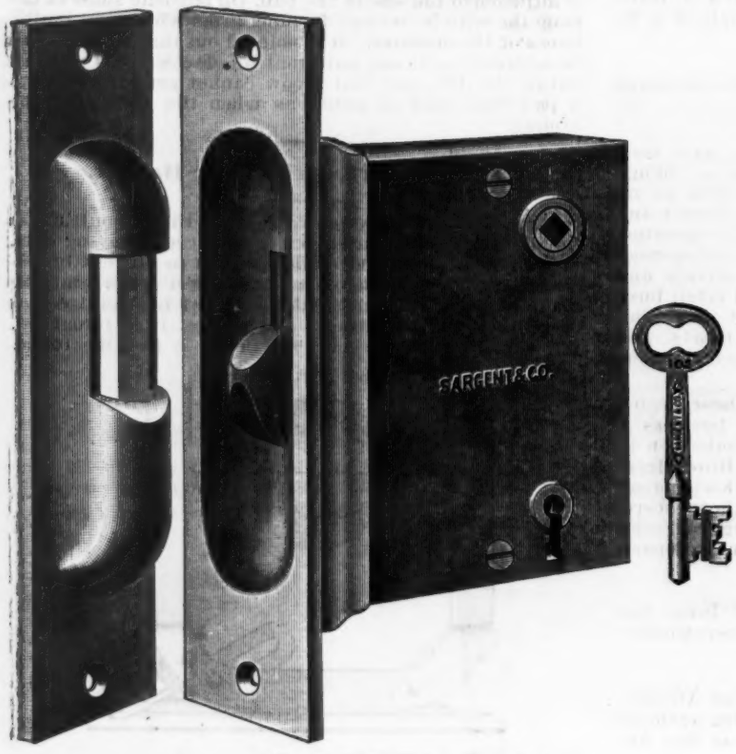


Fig 1.—Stable Sliding Door Lock.

concave face of the lock contains the latch bolt, which does not project beyond the face. The strike is convex to match the face of the lock. All edges and corners are rounded, so that there is no possibility of injury to horses. They are made in three finishes, there is a range of 200 key changes, the works have three steel tumblers and two nickel plated forged steel keys are packed with each lock. The locks can be supplied to order with master key if desired. Fig. 2 is a half size cut of flush cup and drop handle to accompany the lock, 3¼ x 7 inches in dimensions, in three finishes of bronze metal. A smaller

Fig. 1.—The Fry Patent Drafting Table.

one is also made 3½ x 3½ inches, with only the flush cup and handle, an idea of which is obtained by taking the upper half of Fig. 2. This size is made in cast iron japanned, and three finishes of bronze metal. The company also make a new stable sliding door lock for similar purposes at a much lower price, which is also made to protect the horse from injury in entering or leaving the stable.

The Fry Patent Drafting Table.

Illustrations are given in Figs. 1 and 2 of the Fry patent drafting table, both open and folded. The frame of this table is made of the best quality of gray iron, thoroughly braced and bolted together, and is finished in black enamel with bronze trimmings. No springs or set screws are used, their use being avoided because of their liability to weaken or loosen. The table is made with a box or tray under the top in which paper or drawings

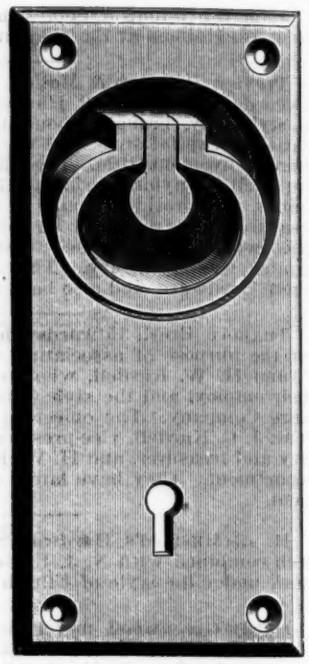


Fig. 2.—Flush Cup and Drop Handle for Lock.

can be kept. It also has a polished oak drawer or tray attached to a swinging arm which can be hung on either end of the frame. The top or drawing board is hinged to the rear end of the box or base, and by means of an iron lever under the front edge of the top and the tilting device on the frame, it can be adjusted to almost any angle required. The hight can be changed to any point from 34 to 42 inches without the draftsman moving from his seat. It is fitted with a neat and substantial

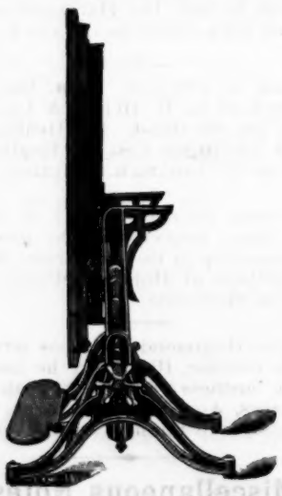


Fig. 2.—The Drafting Table Folded.

foot rest, easily changed from one side of the table to another. The top of the table is made of 4-inch strips of Michigan pine, thoroughly kiln dried, tongued and grooved, and glued together with hard wood ledges secured to the back with heavy screws running in oval slots with metal bushing. Side ledges of cherry are put on by an improved method, making a hard, smooth surface. Every care is taken to reduce danger of warping. The table is manufactured by the J. K. Alexander Mfg. Company, Grand Rapids, Mich.

Beacon Student Gas Portable.

Edward Miller & Co., Meriden, Conn., and 28-30 West Broadway, New York, have put on the market the Beacon student gas portable, here illustrated. Fig. 1

Fig. 1.—Beacon Student Gas Portable No. 266½.

represents style No. 266½ with 10-inch shade and Bobeche. Fig. 2 illustrates the No. 263½ style with 7-inch shade raised to show the burner, both portables having mantles giving incandescent light. The light can

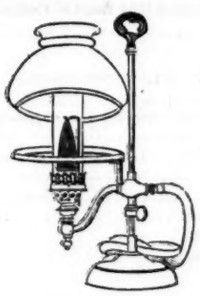


Fig. 2.—Beacon Student Gas Portable No. 263½.

be raised or lowered to suit the occasion, and can be turned without removing the set screw. The lamps can be furnished in polished brass or nickel plate.

The Velox Pedal.

The Velox Machine Works, 307 to 321 Dearborn street, Chicago, have brought out the improved pedal illustrated in Fig. 1. In Fig. 2 is illustrated the barrel,

Fig. 1.—The Velox Pedal.

showing the ball bearings in place. The barrel is turned from the solid bar. The bearings are of the same construction as those which have made the pedal popular, but the bearing cup this year is made heavier and the outer bearing is increased in diameter, making a thicker wall for the cup and admitting of more balls. The outer cone is increased in size, and the balls used throughout are 5-32 inch. All bearings are carefully ground. The tread plates are of an entirely new design, and are so braced, it is remarked, as to make it an exceptionally strong and durable pedal. The rider can change from

Fig. 2.—Barrel, Showing Ball Bearings.

rat trap to rubber easily while riding. A special feature of the pedal, it is stated, is that it admits of a lower drop crank hanger than possible with other designs of pedals. The pedal can be taken apart and reassembled with an ordinary monkey wrench without disturbing the adjustment. The balls are retained on the axle. The company guarantee the pedal.

Marble Automatic Gaff Hook.

W. L. Marble, Gladstone, Mich., is manufacturing the Marble automatic gaff hook, here illustrated. It is made of high grade tool steel, handsomely finished, and is 36 inches long over all, ready for use. The

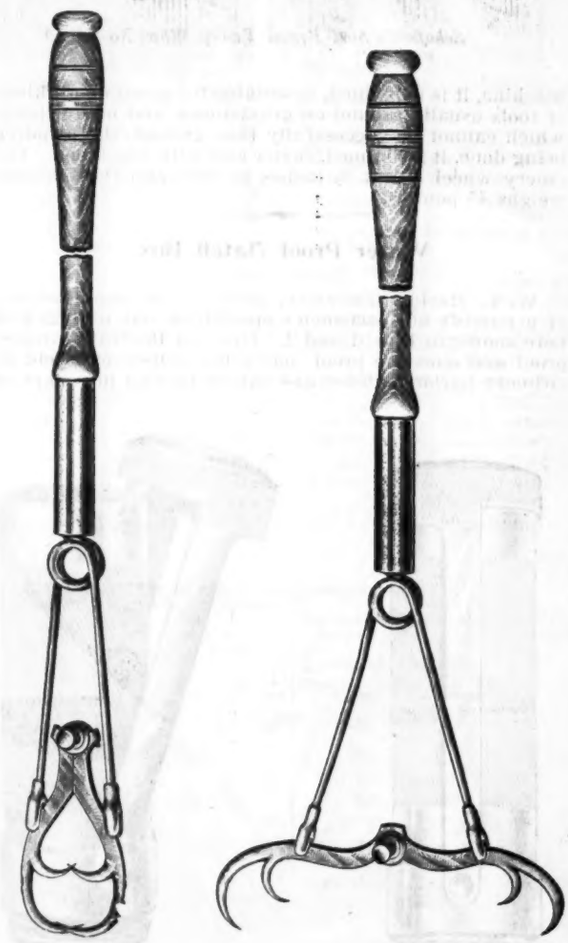


Fig. 1.—Automatic Gaff Hook, Closed.

Fig. 2.—Gaff Hook Extended.

jaws, hooks, knurl and spring are of hardened steel, the handle of hard wood, and the jaws have a spread of 7 inches. It is set by a slight push of the foot against the knurled pin in the center or by a pull against the edge of seat or side of boat. In use a straight thrust will cause the arms to grip the fish the instant it touches him, anything in size from a ½ pound bass to a 40 or 50 pound maskalonge. But one hand is required to use the hook. Larger sizes if desired will be made to order.

Schofield's Steel Frame Emery Wheel No. 2.

The accompanying cut represents a steel frame emery wheel offered by Schofield & Co., Freeport, Ill. The wheel is provided with two pedals, and is so constructed that the position of the operator enables him, it is pointed out, to apply his whole weight and power in doing the work, and to grind more rapidly than with a single treadle. The machine is built with patent adjustable knife and tool rest, so that knives and tools may be ground to an accurate bevel, and to any bevel desired. It is also provided with patent skate grinding rest. The

Schofield's Steel Frame Emery Wheel No. 2.

machine, it is explained, is suitable for grinding all kinds of tools usually ground on grindstones, and many things which cannot be successfully thus ground, the grinding being done, it is claimed, faster and with less labor. The emery wheel is 6 x ⅝ inches in size, and the machine weighs 45 pounds.

Water Proof Match Box.

W. L. Marble, Gladstone, Mich., is the manufacturer of a number of sportsmen's specialties, one of which is here shown in Figs. 1 and 2. This is a Recreation water proof and moisture proof match box, which will hold 25 ordinary parlor matches and can be carried in pocket or

Fig. 1.—Water Proof Match Box, Closed.

Fig. 2.—Match Box Open.

cartridge belt, being about the size of a No. 12 gauge cartridge. The box is a seamless drawn brass shell nickeled, 13-16 inch in diameter. The bottom of the box is double threaded to receive a threaded collar, which is attached to the downwardly extending arms of the cover. The cover has a rubber gasket firmly held in place by a brass washer with projecting tooth, which prevents the cover being swung too far to one side. The box is opened and closed by turning the threaded portion to left or right, and the inner rubber gasket can be renewed by reversing the screw in center of cap, which releases a brass washer on the inside and permits the introduction of a new gasket. The checkered body gives an excellent surface for igniting matches. This box is recommended for sportsmen, hunters, campers, cyclists, &c., and is guaranteed to be water tight.

J. M. Walters has succeeded Amann & Walters in the Hardware and Furniture business at Robinson, Kan.

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Current Hardware Prices.

REVISED MARCH 20, 1900.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer, are printed in *Italics*, and the prices named represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. They apply to such quantities of goods as are usually purchased by retail merchants. Very small orders and broken packages often command higher prices while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Cut Prices.—*In the present condition of the market, while many advanced prices are announced by the manufacturers, lower prices are often made by the wholesale trade who have stocks on hand purchased at former quotations.*

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE INDEX SUPPLEMENT (April 6, 1899), which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters Blind—
Domestic, ₱ doz. $3.00....33⅓&33⅓&10%
North's....10%
Zimmerman's—See *Fasteners, Blind.*

Window Stop—
Ives' Patent....25&5%
Taplin's Perfection....50%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—
Eagle Anvils....₱ lb 7¼@7¾¢
Hay-Budden, Wrought....9@9¼¢
Horseshoe brand, Wrought....9¼@9¾¢
Samson....₱ lb 7¼@8¢
Trenton, Wrought....₱ lb 8¼@8¾¢

Imported—
Armitage's Mouse Hole....8¾@9¼¢
Peter Wright's....9½@9¾¢

Anvil, Vise and Drill—
Millers Falls Co., $18.00....20%

Apple Parers—See *Parers, Apple, &c.*

Augers and Bits—
Common Double Spur..60&10&10@..%
Boring Machine Augers....60&10&10@..%
Car Bits, 12-in. twist....60@..%
Jennings' Pattern:
Auger Bits....60@..%
Ford's Auger and Car Bits..40&10@40&10&10%
Forstner Pat. Auger Bits....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list....40@40&10%
No. 30. R. Jennings' List..50&10@60%
Russell Jennings'....25&10&2½%
L'Hommedieu Car Bits 15&10@15&10&5%
Pugh's Black....20%
Pugh's Jennings' Pattern....35%
Snell's Auger Bits....60%
Snell's Bell Hangers' Bits....50%
Snell's Car Bits, 12-in. twist....60%
Wright's Jennings Bits (R. Jennings' list)....50%

Bit Stock Drills—
Standard List....65@65&10%

Expansive Bits—
Clark's small, $18; large, $26....50&10%
Lavigne's Clark's Pattern, No. 1, ₱ doz., $26; No. 2, $18....50&10%
Steer's No. 1, $26; No. 2, $18...40@40&5%
Swan's....60%

Gimlet Bits—
Common Double Cut..gro. $2.75@3.25
German Pattern....gro. $5.00@5.50
Double Cut, makers' lists....50&5@50&10%

Hollow Augers—
Ames....25&10%
Bonney's Adjustable, ₱ doz....$16.00
New Patent....25&10%
Universal....20%

Ship Augers and Bits—
Ford's....40%
Snell's....40%
L'Hommedieu's....15&10@15&10&10%
Watrous'....40@40&5%

Awl Hafts, See *Hafts, Awl.*

Awls—
Brad Awls:
Handled....gro. $2.75@3.10
Unhandled, Shouldered gro. 63@66c
Unhandled, Patent....gro. 66@70c
Peg Awls:
Unhandled, Patent....gro. 31@34c
Unhandled, Shouldered. gro. 65@70c
Scratch Awls:
Handled, Common..gro. $3.50@4.00
Handled, Socket..gro. $11.50@13.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—
First Quality, best brands. $6.25@6.50
First Quality, other brands $5.75@6.00
Jobbers' Special Brands:
Good Quality....$5.50@5.75
Best Quality....$6.00@6.50
Cheap, Handled Axes....$5.50@5.75
Beveled, add 25c doz.

Axle Grease—See *Grease, Axle.*

Axles—

	Iron.	Steel.
Concord, loose collar...	6¼c	6 c
Concord, solid collar...	6¾c	6½c
No. 1 Common....	5 c	4¾c
No. 1¼ Com. New Style..	5½c	5¼c
No. 2. Solid Collar....	5¾c	5½c
Nos. 7, 8, 11 to 14....	60&10%	
Nos. 7, 8, 11 to 14, 100 sets....	60%	
Nos. 15 to 18....	50%	
Nos. 19 to 22....	60&10%	

2% cash 10 days.

Boxes, Axle—
Common and Concord, not turned.. lb. 5c
Common and Concord, turned..lb. 6c
Half Patent....lb. 9c

Balances—
Sash—
Caldwell new list....50%
Pullman's....62½%
Spring—
Spring Balances....50@50&5%
Chatillon's Light Spg. Balances...40&10%
Chatillon Straight Balances....40%
Chatillon Circular Balances....50%
Chatillon's Large Dial....30%

Barb Wire—See *Wire, Barb.*

Bars—Crow—
Steel Crowbars, 10 to 40 lb., per lb....4@4½c

Beams, Scale—
Scale Beams, List Jan. 12, '88....30@30&5%
Chattillon's No. 1....30%
Chattillon's No. 2....40%

Beaters—Egg—
Standard Co.:
No. 5 Steel Handle Dover, ₱ gro. $6.50
No. 10 Cast Handle Dover, ₱ gro. $8.00
No. 10 Steel Handle Dover, ₱ gro. $8 00
No. 15 Extra Heavy Steel Handle, ₱ gro. $15.00
Rival, ₱ gro....$10.00
Taplin Mfg. Co.:

	₱ gro.
No. 50 Small Family size	$6.50
No. 100 Regular Family size	$8.00
No. 102 Regular Family size, tinned	$9.50
No. 150 Large Family size	$13.00
No. 152 Large Family size, tinned	$17.00

Lyon's, Standard size....₱ doz. $1.75
Wonder (S. S. & Co.)....₱ gro. $7.50

Bellows—
Blacksmith—
Standard List....70@70&5%

Inch..	30	32	34	36	38	40
Each..	$3.70	3.95	4 55	5.10	5.70	6.55

Extra Length:
Each..$4.25 4.85 5.40 5.95 6.80 7.95
Molders—

Inch..	9	10	11	12	14	16
Doz...	$6.75	7.25	8.50	9.50	12.00	14.50

Hand—

Inch...	6	7	8	9	10	12
Doz....	$3.75	4.25	4.50	5.00	5.75	6.75

Net Prices.

Bells—Cow—
Ordinary goods....75&10%
High grade....70@70&10%
Jersey....75@75&10%
Texas Star....50&10%
Door—
Barton G ng....55%
Gong, Yankee....55%
Home, R. & E. Mfg. Co.'s....50&10%
Lever and Pull, Sargent's....33⅓&10%
Hand—
Hand Bells, Polished....65@65&10%
White Metal....65@65&10%
Nickel Plated....50@50&10%
Swiss....60@60&10%
Miscellaneous—
Farm Bells....lb. 2@2½c
Steel Alloy Church and School....50&10@60%
Wilmot & Hobbs Mfg. Co, Gongs....70%

Belting
Rubber—
Common Standard....70&10@75%
Standard....60&10@70%
Extra....60@60&10%
High Grade....60@60&10%
Leather—
Extra Heavy, Short Lap....50&10@50&10&5%
Regular Short Lap....60@60&10%
Standard....60&10@60&10&5%
Light Standard....70%
Cotton—
Rossendale-Reddaway B. & H. Co.:
Sphinx Brand....60&10%
Durable Brand....70%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—
Green River Tire Benders and Upsetters....30%
Ill. Iron & Bolt Co....40@40&5%
Stoddard's Lightning Tire Upsetters....40@50%

Bicycle Goods—
Lane's Cycle Hanger....33⅓&5%
John S. Long's Son's 1899 list:
Chain....50%
Parts....50%
Spokes....50%
Tubes....60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Bit Holders—See *Holders.*

Blind Adjusters—See *Adjusters, Blind.*

Blind Fasteners—See *Fasteners, Blind.*

Blind Staples—See *Staples, Blind.*

Blocks—Tackle—
Common Wooden....70@70&10%
Cleveland Steel....50&10@60&10%
Eddy's Steel....60&10%
Hartz Steel....50&10%
Ford's Star Brand Self Lubricating....60&10%
Hollow Steel, Ford's Pat. Star Brand....50&10%
Lane's Patent Automatic Lock and Junior....30%
Stowell's Novelty, Mal. Iron....50%
See also *Machines, Hoisting.*

Boards, Stove—
1899 List:
Zinc....30@33⅓%
Crystal and Embossed....40%

Bolts—
Carriage, Machine, &c.—
Common, list Jan. 30, '95..45&5@50&5%
Norway Iron, $3.00, list Oct. 7, '84....75@75&10%
Phila. Eagle, $3.00 list May 24, '99....75&10@75&10&5%
Bolt Ends, list Jan. 30, '95....50&5@50&10&5%
Machine, list Oct. 1, '99....50&5@50&10%
NOTE.—*Jobbers' prices on Bolts are now generally lower than manufacturers'.*
Door and Shutter—
Cast Iron Barrel, Round Brass Knob:

Inch....	3	4	5	6	8
Per doz...	$0.33	.36	.45	.57	.80

Cast Iron Spring Foot:

Inch....	6	8	10
Per doz....	$1.00	1.25	1.75

Cast Iron Chain, Flat, Japanned:

Inch....	6	8	10
Per doz....	$0.85	1.20	1.50

Cast Iron Shutter, Brass Knobs:

Inch....	6	8	10
Per doz....	$0.60	.90	1.15

Wrought Barrel Brass Knob:

Inch....	3	4	5	6	8
Per doz...	$0.44	.50	.61	.70	1.28

Wrought Barrel....70&10@75&5%
Wrought "Bronzed..40&5@50&10%
Wrought Flush, B. K..50&10@60&10%
Wrought Shutter...40&10&10@60&5%
Wrought Square Neck....50@50&10%
Wrought Sunk....50@50&10%
Ives' Patent Door....62½@62½&10%
Stove and Plow—
Plow....50&10@60%
Stove....60@60&10
Tire—
Common....57@5..&10
American Screw Company:
Norway Phila., list Oct. 16, '84....70%
Eagle Phila., list Oct. 16, '84....72½%
Bay State, list Dec. 28, '99....57%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84....70%
Eagle Phila., list Oct. 16, '84....72½%
Eclipse, list Dec. 28, '99....57%
Port Chester Bolt & Nut Company
Empire, list Dec. 28, '99....57%
Keystone Phila., list Oct. '84....72½%
Norway Phila., list Oct. '84....70%

Borers, Tap—
Borers Tap, Ring, with Handle:

Inch....	1¼	1⅜	1¾	2
Per doz...	$3.50	4.50	5.00	6 50
Inch....	2¼		2½	
Per Doz....	$7.50		10.25	

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each....25@30%

Boring Machines—See *Machines, Boring.*

Boxes, Mitre—
Seavey's, per doz., $30....40%

Braces—
NOTE.—*Most Braces are sold at net prices.*
Common Ball, American...$1.10@1.20
Barber's....50&10&10@60&10%
Fray's Genuine Spofford's....50&10&5%
Fray's No. 70 to 120, 81 to 123, 207 to 414....50&10&5%
P., S. & W. Co., Peck's Patent....50&10@60%

Brackets—
Cast Iron, plain....60@10@70&10%
Wrought Steel....70@10@75%
Bradley's Wire Shelf:
Full cases....80%
Broken cases....75&10%

Bright Wire Goods—See *Wire and Wire Goods.*

Broilers—
Wire Goods Co....70@70&10%

Buckets, Well and Fire—See *Pails*

Bucks, Saw—
Hoosier....₱ gro. $36.00

Bull Rings—See *Rings, Bull.*

Butts—Brass—
Wrought list Sept., '96...25&5@33⅓%
Cast Brass, Tiebout's....50%
Cast Iron—
Fast Joint, Broad....50@....%
Fast Joint, Narrow....50@....%
Loose Joint....66⅔&5@70%
Loose Pin....66⅔&5@70%
Mayer's Hinges....66⅔&5@70%
Parliament Butts....66⅔&5@70%
NOTE.—*Jobbers often undersell manufacturers.*
Wrought Steel—
Loose Joint, Table and Back Flaps, Narrow and Broad....70@5&
Inside Blind, Loose Pin....70@10%
Loose Pin, Ball and Steeple Tip....
Bronzed Wrt. Nar. and Inside Blind Butts....50&10@50&10&5%

Cages, Bird—
Hendryx, Brass:
3000, 5000, 1100 series....5%
1200 series....33⅓%
200, 300, 600 and 900 series....40&10%
Hendryx Bronze:
700, 800 series....40&10%
Hendryx Enameled....40&10%

Calipers—See *Compasses.*

Calks—Toe and Heel—
Blunt....per lb. 5 @5¼c
Sharp....per lb. 5½@5¾c
Perkins' Blunt....₱ lb 5 ¢
Perkins' Sharp....₱ lb 5½¢

Can Openers—See *Openers, Can*

Cans, Milk—

Buffalo Pattern:	5	8	10 gal.
	$3.00	$4.00	.33⅓%
Illinois Pattern.	$2 40	3.10	3.50	.33⅓%
Iowa Pattern...	2.40	3.35	3.75	.33⅓%
	20	30	40	Qts.
New York Patt'rn	3.00	4.35	4.80	.33⅓%
Baltimore Patt'rn	3.10	4.45	4.70	.33⅓%

Cans, Oil—
Galvanized Blue Band, 1-gal., ₱ doz. $1.75@$2.00
S. S. & Co., Galvanized Family with faucet, 3-gal., ₱ gro. $54; 5-gal., $63; 10-gal., $120.00
Glass Oil....₱ doz. $1.90@$2.20

Caps—Percussion—
Eley's E. B....50c
G. D....per M 32@34c
F. L....per M 37@40c
G. E....per M 47@50c
Musket....per M 57@60c
Primers—
Berdan Primers, $1.00....5%

B. L. Caps (Sturtevant Shells) $1.00 ..... 5%
All other primers ..... *$1.10@$1.13*

Carpet Stretchers—
See *Stretchers, Carpet.*

Cartridges—
B. B. Caps, Con., Ball Swgd. *$1.90*
B. B Caps, Round Ball ... *$1.12@1.18*
Blank Cartridges:
22 C. F., $5 50 ..... 10c&5%
38 C. F., $7 00 ..... 10c&5%
22 cal. Rim, $1.50 ..... 10c&5%
32 cal. Rim, $2.75 ..... 10c&5%
Central Fire 25%
Pistol and Rifle ..... 15c&5%
Primed Shells and Bullets ..... 15c&5%
Rim Fire Sporting 50%
Rim Fire, Military ..... 15c&5%

Casters—
Red ..... 60c&10@70%
Plate ..... 60c&10@70%
Plate, part Brass ..... 60c&10@60%
Philadelphia ..... 60c&10@70%
Boss ..... 70&10%
Boss Anti-Friction ..... 70&10%
Martin's Patent (Phœnix) 45%
Payson's Anti-friction Furniture. 70&10%
Payson's Anti-Friction Truck ... 70&10%
Standard Ball Bearing 45%
Tucker's Patent, low list 30%

Cattle Leaders—
See *Leaders, Cattle.*

Chain—
American Coil, Full Casks:

5-16	¼	5-16	¾	7-16	½	9-16
8.75	6.85	5.85	5.00	4 85	4.75	4.65
¾	⅞	1	1 inch.			
4.55	4. 0	4.40	4.40 cents per lb.			

Less than Cask lots add ¼@½c per lb.
German Coil, list July 24, '97 ..... 60&10@70%
German Halter Chain, list July 24, '97 ..... 60&10@70%
Trace, Wagon and Fancy Chains, list April, '98 ..... 50&10@50&10&5%
Jack Chain, list July 10, '93:
Iron ..... 50&5@60%
Brass ..... 50&5@60%
Gal. Pump Chain ..... *lb. 5½@5¾c*
Breast, Hitching and Rein Chains
Covert Mfg. Works 50%
Covert Mfg. Co.:
Breast ..... 35&2%
Halter ..... 35&2%
Heel ..... 35&2%
Rein ..... 35&2%
Stallion ..... 35&2%
Oneida Community:
Eureka Coil and Halter ..... 60@60&5%
Niagara Coil and Halter ..... 60@60&5%
Niagara Cow Ties ..... 45&5@45&10&5%
Am. Coil and Halters ..... 50&10&5@60%
Am Cow Ties ..... 35&5@40&5%
Wire Goods Co.:
Dog Chain 60%
Universal Dbl-Jointed Chain 45%

Chalk—(From Jobbers.)
Carpenters', Blue ..... *gro. 45c*
Carpenters', Red ..... *gro. 35c*
Carpenters', White ..... *gro. 30c*
See also Crayons.

Chalk Lines—See *Lines.*

Checks, Door—
Bardsley's ..... 40&10%
Columbian ..... 50&10%
Eclipse ..... 60@60&10%

Chisels—
Socket Framing and Firmer
Standard List ..... 70c&5@70c10c&5%
Buck Bros 30%
Charles Buck 30%
Swan's ..... 70&10&2½%
L. & I. J. White ..... 30@30&5%

Tanged—
Tanged Firmers ..... *40c&5@40&10%*
Buck Bros 30%
Charles Buck 30%
L. & I. J. White, Tanged ..... 25&5%

Cold—
Cold Chisels, good quality lb. 14@16c
Cold Chisels, fair quality ..... lb. 12c
Cold Chisels, ordinary ..... lb. 8@9c

Chucks—
Beach Pat., each $8.00 ..... 25%
Skinner Patent Chucks:
Combination Lathe Chucks 40%
Drill Chucks, Patent and Standard 30%
Drill Chucks, New Model ..... 2 %
Independent Lathe Chucks 40%
Improved Planer Chucks 30%
Universal Lathe Chucks 40%
Face Plate Jaws 35%
Union Mfg. Co.:
Combination 40%
Gear Drill 30%
Geared Scroll 30%
Independent 40%
Union Drill 30%
Universal 40%
Face Plate Jaws 35%

Clamps—
Adjustable, Hammers' ..... 20@20&5%
Adjustable, Steam's 30%
Cabinet, Sargent's ..... 45&10%
Carriage Makers', P., S. & W. Co.. 40&10%
Carriage Makers', Sargent's ..... 50&10%
Bes'y, Parall'l ..... 33⅓&10%
Lineman's, Ulca Drop Forge & Tool Co 40%
Saw Clamps, see *Vises, Saw Filers'.*

Cleaners, Walk—
Star Socket, All Steel ... ₱ doz. $4.00 net
Star Shank, All Steel ... ₱ doz. $3.75 net

Cleavers, Butchers'—
Foster Bros 30%
New Haven Edge Tool Co.'s.. 40@40&5%
Nichols Bros., Flat hdl., 30%; Rd. hdl., 40%
Fayette R. Plumb 45%
P., S. & W ..... 33⅓&5@33⅓&10%
& I. J. White 35%

Clippers—
Chicago Flexible Shaft Company
Handy Toilet ..... ₱ doz. $7.20
Mascotte Toilet ..... ₱ doz. $8.40
Monitor Toilet ..... ₱ doz. $9.00
Stewart's Patent ..... ₱ doz. $10.00

Clips, Axle—
Eagle and Superior ¼ and 5-16 inch ..... *65c&10@70%*
Norway, ¼ and 5-16 inch ... *65@65c&5%*

Cloth and Netting, Wire
—*See Wire, &c.*

Cocks, Brass—
Hardware list (Globe, Kerosene, Lever Bibbs, Racking, &c.) ..... *60c&10@60c10c10%*

Coffee Mills—See *Mills, Coffee.*

Collars Dog—
Brass, Pope & Stevens' list 40%
Embossed, Gilt, Pope & Stevens' list 30&10%
Leather, Pope & Stevens' list 40%

Compasses, Dividers, &c.
Ordinary Goods ..... *70c&10@75%*
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Call's Patent Inside 55%
Calipers, Double 65%
Calipers, Inside or Outside 65%
Calipers, Wing 60%
Compasses 50%
J. Stevens A. & T. Co ..... 25&10%

Conductor Pipe, Galvanized—

Territory.	Carload. Loose.	L. C. L. Nested.
Eastern	*6c&25c&5%*	*60c&20c&1½%*
Central	*60&25c&2½%*	*60c&17½%*
Southern	*60c&20c&5%*	*60c&15%*
S. Western	*60c&20%*	*60c&12½%*

Terms 2% for cash.
See also *Eave Trough.*

Coolers, Water—
S. S. & Co.: 2-gal., $14.00; 3-gal., $16.00; 4-gal., $18.50; 6 gal., $23.00

Coopers' Tools—
See *Tools, Coopers'.*

Cord— Sash—
Braided, Drab ..... *lb. 22@25c*
Braided, White, Common .. *lb 16@18c*
Cable Laid Italian .. lb. A, 18c; B, 16c
Common India ..... *lb 8½@9½c*
Cotton Sash Cord, Twisted ... *12@16c*
Patent Russia ..... *lb. 12 @13c*
Cable Laid Russia ..... *lb. 13½@14c*
India Hemp, Braided ..... *lb 14@15c*
India Hemp ..... *lb. 10@12c*
Patent India ..... *lb. 10@12c*
Pearl Braided, cotton ..... ₱ lb 16@18¢
Massachusetts, Braided ..... ₱ lb 22½¢
Massachusetts, Drab ..... ₱ lb 26½¢
Eddystone Braided Cotton ..... ₱ lb 14¢
Harmony Cable Laid Italian ..... ₱ lb 18¢
Ossawan Mills:
Crown, Solid Braided White ... ₱ lb 18¢
Braided, Giant, White ..... ₱ lb 17¢
Peerless:
Cable Laid Italian ..... 16¢
Cable Laid Russian ..... 14¢
Cable Laid India ..... 12¢
Braided India ..... 16¢
Phœnix, White ..... 19¢
Samson:
Braided, Drab Cotton ..... ₱ lb 32½¢
Braided, Italian Hemp ... ₱ lb 32½¢
Braided, Linen ..... ₱ lb 49¢
Braided, White Cotton, Spot. ₱ lb 28½¢
Silver Lake:
A quality, Drab, 40¢ 15%
A quality, White, 35¢ 15%
B quality, Drab, 35¢ 15%
B quality, White, 30¢ 15%
Italian Hemp, 40¢ 15%
Linen, 67½¢ 15%

Wire, Picture—
Braided or Twisted ..... *70@70c&5%*

Corn Knives and Cutters
—See *Knives, Corn.*

Crackers, Nut—
Little Giant ..... ₱ gr. $24.00
Turner & Seymour Mfg. Co 50%

Cradles—
Grain *50%*

Crayons—
White Round Crayons, gross ... 5@6c
Cases, 100 gro., $4.50 @$5 00, at factory.

Metal Workers' Crayons	gr. $2.50	Case lots 20%
Soapstone Pencils, round, flat or square	gr. $1.50	
Rolling Mill Crayons	gr. $2.50	
Railroad Crayons (composition)	gr. $2.00	

See also *Chalk.*

Creamery Pails—See *Pails, Creamery.*

Crooks, Shepherds'—
Fort Madison, Heavy ..... ₱ doz. $7.00
Fort Madison, Light ..... ₱ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—
Victor Garden ..... ₱ doz. $10.00

Cutters—
Glass—
Smith & Heminway Co 30%

Meat—

American 30%						
Nos.	1	2	3	4	5	6
Each	$5	$7	$10	$25	$50	$60
Connecticut:						
No.	0	1	8	10	12	
Each	$1.75	2.25	3.00	3.00	3.50	
Enterprise ..... 25@25&7½%						
Nos.	5	10	12	32	32	
Each	$2	$3	$2.50	$4	$6	
Dixon's, ₱ doz ..... 33⅓&10%						
Nos.	1	2	3	4		
	$14.00	$17.00	$19.00	$30.00		
Hale's, ₱ doz ..... 60&10&10@70%						
Nos.	11	12	13			
	$27.00	$33.00	$45.00			
Home No. 1, ₱ doz. $36.00 ..... 60%						
Little Giant, ₱ doz ..... 33⅓&5&5%						
Nos. 305	310	312	340	322		
$35.00	$48.00	$44.00	$75.00	$68.00		

Miles' Challenge, ₱ doz ..... 45@45&10%

Nos.	1	2	3
	$22.00	$30.00	$40.00

New Triumph No. 605, ₱ doz. $24.00 .. 33⅓&5%
Woodruff's, ₱ doz 40%

Nos.	100	150
	$15.00	$18.00

Chadborn's Smoked Beef Cutter, ₱ doz. $60.00
Enterprise Beef Shavers ..... 25@30%

Slaw and Kraut—
Henry Disston & Son's:
Slaw, Corn Grater, &c 40%
Kraut Cutters 24 x 7, 26 x 8, 30 x 9. 55%
Kraut Cutters 36 x 12, 40 x 12 ..... 40%
Tucker & Dorsey Mfg. Co.:
Kraut Cutters 40%
Slaw Cutters, 1 Knife, ₱ gr. ... $15@$20.
Slaw Cutters, 2 Knife, ₱ gr. ... $22@$30

Tobacco—
All Iron, Cheap ..... doz. $4.25@$4.50
Enterprise ..... 25@30%
National, ₱ doz. $21.00 ..... 40%
Sargent's, ₱ doz. $24.00 ..... 60@60&10%

Washer—
Appleton's, ₱ doz. $16.00 ..... 60&10@60&10&10%
Bonney's ..... ₱ doz. $4.75

Diggers, Post Hole, &c.—
Dalbey Post Hole Auger .. per doz. $10.00
Iwan's Improved Post Hole Auger 40%
Iwan's Perfection Post Hole Digger .... ₱ doz. $10.00
Never-Break Post Hole Diggers, ₱ doz. $24.00 ..... 50%
Samson, ₱ doz. $34.00 ..... 25%

Dividers—See *Compasses.*

Dog Collars—See *Collars, Dog.*

Door Checks—
See *Checks, Door.*

Door Springs—
See *Springs, Door.*

Drawers, Money—
Tucker's Pat. Alarm Till No. 1, ₱ doz. $18; No. 2, $15; No. 3, $14; No. 4, $18.

Drawing Knives—
See *Knives, Drawing.*

Drills and Drill Stocks—
Common Blacksmiths' Drill .. each $1.75@$2.00
Blacksmiths' Self-feeding ..... each $3.75@4.00
Bench Drills, Stearns' 50%
Breast, Millers Falls, each $3.00 .. 15&10%
Breast, P., S. & W ..... 30@30&10%
Goodell Automatic Drills .. 40&5@40&10%
Ratchet, Curtis & Curtis 25%
Ratchet, Parker's 40%
Ratchet, Weston's ..... 20@25%
Ratchet, Whitney's, P. S. & W ... 40&10%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00 ..... 33⅓%

Twist Drills—
Standard List ..... *65@65c&10%*

Drill Bits or Bit Stock Drills—See *Augers and Bits.*

Drill Chucks—See *Chucks.*

Dripping Pans—
See *Pans, Dripping.*

Drivers, Screw—
Balsey's Screw Holder and Driver, ₱ doz. 2½-inch, $6; 4-in., $7.50 6-in., $9.. 40%
Buck Bros 30%
Buck Bros' Screw Driver Bits 27½%
Champion ..... 40&10%
Douglass Mfg. Co ..... 20@20&10%
Fray's Hol. Handle Sets, No. 3, $12.00 50%
Gay & Parsons' Ratchet 35%
Goodell's Automatic ..... 50&10&10@50&10&10&5%
Mayhew's Black Handle 50%
Mayhew's Monarch ..... 45&10%
New England Specialty Co ..... 50&10%
Sargent & Co.'s:
Nos. 1, 50, 55 and 60. 50&10@50&10&10&1%
Nos. 20 and 40 ..... 66⅔@66⅔&10%
Screw Driver Bits ..... ₱ doz. 50@70¢
Stanley's R. & L. Co.'s:
No. 64, Varnished Handles ..... 60&10%
No. 86 ..... 70&10%
Swan's:
Nos. 65 to 68 ..... 50%
No. 40 ..... 40&10%
Nos. 25, 35 and 45 ..... 20&10&10%

Eave Trough, Galvanized

Territory.	Carload.	L. C. L.
Eastern	*75c&15%*	*75c&10%*
Central	*75c&12½%*	*75c&7½%*
Southern	*75c&10%*	*75c&5%*
S. Western	*75c&2½%*	*75%*

Terms, 2% for cash.
See also *Conductor Pipe.*

Egg Beaters—See *Beaters, Egg.*

Egg Openers—
See *Openers, Egg.*

Emery—*Nos. 4 to 54 to Flour, CF*

	46 gro.	*180 gro.*	*F.FF*
Kegs ..... *lb.*	*4½c*	*5 c*	*3 c*
½ Kegs .... *lb.*	*4½c*	*5½c*	*3½c*
¼ Kegs .... *lb.*	*5 c*	*5½c*	*3½c*
10-lb cans, 10 in case	*6 c*	*6½c*	*5½c*
10-lb. cans, less than 10	*10 c*	*10 c*	*8c*

Enameled and Tinned Ware—See *Ware, Hollow.*

Escutcheon Pins—
See *Pins, Escutcheon.*

Extractors, Lemon Juice
—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's ..... 50&10%

Faucets—
Cork Lined ..... *70c&5@70c10c&5%*
Metallic Key, Leather Lined ..... *70@70c10*
Red Cedar ..... *60@50c&5*
B. & L. B. Co.:
West's Lock, Open and Shut Key 50&10%
John Sommer's Peerless Tin Key 40%
John Sommer's Boss Tin Key 50%
John Sommer's Victor Metal Key. 50&10%
John Sommer's Duplex Metal Key 60%
John Sommer's Diamond Lock 40%
John Sommer's I. X. L. Cork Lined .. 50%
John Sommer's Reliable Cork Lined. 50&10%
John Sommer's Common Cork Lined. 70%
John Sommer's Chicago Cork Lined .. 60%
John Sommer's O. K. Cork Lined 50%
John Sommer's Perfection Cedar 40%
Star ..... 60@60&5%
Star, Metal Plug new list ..... 40@40&5%
Lockport, Metal Plug, reduced list. 60&5%
Self Measuring:
Enterprise, ₱ doz. $36.00 ..... 40%
Lane's, ₱ doz. $36.00 ..... 33⅓%
National Measuring, ₱ doz. $36.00 .. 40%

Felloe Plates—
See *Plates, Felloe.*

Files—Domestic—
List revised Nov. 1, 1899.
Best Brands ..... 70@75%
Good Brands ..... *75c&7@75c10c10%*
Fair Brands ..... *75c10c&5@80c&5%*
Second Quality ..... *80c10@80c&5%*

Imported—
Stubs' Tapers, Stubs' list, July 24, '97 ..... 25%

Fixtures, Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*	*24*
Per doz	*$3.10*	*3 40*	*3 60*	*4.25*	*5.00*

Stowell's Giant Grindstone Hanger ..... ₱ doz. $6.00
Stowell's Grindstone Fixtures 50%
P., S. & W. Co ..... 50&10&10%
Reading Hardware Co ..... 30&20&10%
Sargent's Patent ..... 60&10@60&10&10%

Fluting Machines—
See *Machines, Fluting.*

Fodder Squeezers—
See *Squeezers, Fodder.*

Forks—
Aug. 1, 1899, list.
Hay, 2 tine *65%*
Hay, 3 tine *66⅔%*
Manure, 4 tine *70%*
Manure, 5 and 6 tine *70%*
Spading ..... *70c&5%*
Iowa Dig-Ezy Potato 65%
Victor, Hay 70%
Victor, Manure ..... 70&5%
Victor, Header ..... 70&12½%
Champion, Hay ..... 60&20%
Champion, Manure ..... 70&5%
Columbia, Hay ..... 66⅔&5%
Columbia, Manure 70%
Columbia, Spading ..... 70&10%
Hawkeye Wood Barley 4 tine ₱ doz. $5.00; 6 tine, $6.00.
Plated.—See *Spoons.*

Frames—
Saw—
Red, Polished and Varnished .. doz. $1 15@$1.30
White ..... *doz. 75@80c*

Screens and Frames—
See *Screens.*

Freezers, Ice Cream—

Qts	*2*	*3*	*4*	*6*	*8*	*10*
Best	*$1.40*	*1 60*	*1.85*	*2.30*	*3.00*	*3.90*
Good	*$1 25*	*1.35*	*1.70*	*2 05*	*2 65*	*3.50*
Fair	*$1.00*	*1.10*	*1 50*	*1.75*	*2.30*	*3.00*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—

	Per 1000 Feet.
Hemp Fuse	*$2.60*
Cotton Fuse	*2.90*
Single Taped Fuse	*3.50*
Double Taped Fuse	*4.70*
Triple Taped Fuse	*5.70*

Gates, Molasses and Oil—
Stebbin's ..... *80@80c10%*

Gauges—
Marking, Mortise, &c ..... *55c10@55c10c10%*
Barrett's Comb. Roller Gauge ..... ₱ doz. $6.75@7.25
Stanley R. & L. Co.'s Butt & Rabbet Gauge ..... 30&10%
Wire, Brown & Sharpe's 25%
Wire, Morse's 25%
Wire, P., S. & W. Co ..... 10@10&5%

Cimlets—
Nail, Metal, Assorted ..... *gro.* $1.40@1.75
Spike, Metal, Assorted ..... *gro.* $3.00@3.50
Nail, Wood Handled, Assorted. ..... *gro.* $4.00@4.50
Spike, Wood Handled, Assorted ..... *gro.* $5 00@5.25

Class, American Window
List Nov. 18, 1898.
Small lots from store:
Single or Double.
Eastern, First Bracket ..... 85&10%
Eastern, All Other Brackets ..... 85&20%
From Jobbers or Factory, with Freight Allowance, except in Eastern district:
Carloads. Single Strength.
First Bracket ..... 85&25%
Second and Third Brackets 89%
All Above ..... 90&5%
Carloads Double Strength
First Five Brackets 89%
60 inch Bracket 90%
70 to 100 inch Bracket, inclusive ..... 90&10&5%
All Above ..... 90&20%

Clue—Liquid, Fish—
List A, Bottles or Cans, with Brush. ..... 57½@50%
List B, Cans (½ pts., pts., qts.). ..... 35½@18%
List C, Cans (½ gal., gal.) ..... 35@45%

Clue Pots—See *Pots, Glue.*

Crease, Axle—
Common Grade ..... *gro.* $5.00@6.00
Allerton's Axle:
1 lb Tins, ₱ gr. $9.00
3 lb Tin Pails, ₱ doz., $2.00; 5 lb, $3.00; 10 lb, $6.00.
25 lb wood pails ..... ₱ doz. $12.00
Dixon's Everlasting....10-lb pails, ea. 85¢
Dixon's Everlasting, in bxs., ₱ doz. 1 lb $1.20; 2 lb $2.00

Grindstone Fixtures—
See *Fixtures, Grindstone.*

Gun Powder—See *Powder.*

Hack Saws—See *Saws.*

Hafts, Awl—
gro.
Peg Patent, Leather Top ..... $4.90@5.25
Peg Patent, Plain Top ..... $3.50@3.75
Sewing, Brass Ferrule ..... $1.50@1.60
Saddlers', Brass Ferrule ..... $1.35@1.45
Peg, Common ..... $1.25@1.35
Brad, Common ..... $1.50@1.75

Halters and Ties—
Covert mfg. Co., Web ..... 45&2%
Covert Mfg. Co., Jute Rope ..... 45&2%
Covert Mfg. Co., Sisal Rope ..... 30&2%
Covert's Saddlery Works', 96 list, Web .. 60&10%
Covert's Saddlery Works, Leather 60&10%
Covert's Saddlery Works, Jute ..... 60&5%
Covert's Saddlery Works, Sisal 60%
Covert's Saddlery Works, Manila ..... 60&5%
Covert's Saddlery Works, Cotton 70%

Hammers—
Handled Hammers—
Heller's Machinists' ..... 40@40&5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75 ..... 40&10%
Pecx, Stow & Wilcox ..... 40@40&5%
Fayette R. Plumb:
Artisans' Choice, A. E. Nail ..... 33½&5%
Engineers' and B. S. Hand ..... 50&10%
Machinists' Hammers ..... 50&10%
A. E. & A. E., Bell Face Nail ..... 33½&5%
Riveting and Tinners' ..... 33½&5%
Sargent's C. S. New List ..... 45@45&10

Heavy Hammers and Sledges—
3 lb. and under ..... *lb.* 45c
3 to 5 lb ..... *lb.* 36c } 70&10@75
Over 5 lb ..... *lb.* 30c } &10%
Note.—Lower prices sometimes made by jobbers.
Wilkinson's Smiths' ..... 9½c@10c lb.

Handcuffs and Leg Irons
See *Police Goods.*

Handles—
Agricultural Tool Handles—
Hoe, Rake, Fork, &c. ..... 50&10@60%
Shovel, &c., Wood D Handle ..... 50@50&5%

Cross-Cut Saw Handles—
Atkins' ..... 40&5%
Champion ..... 45@45&10%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted ..... *gro.* $2.40@$3 60
Auger, large ..... *gro.* $3 85@$3.00
Brad Awl ..... *gro.* $1.50@$1.75
Chisel Handles:
Apple Tanged Firmer, gro ass'd. $2.25@$2 35; *large, $2.75@$3.00.*
Hickory Tanged Firmer, gro. ass'd. $1.75@$2.25; *large, $2 35@$2.50.*
Apple Socket Firmer, gro. ass'd, $1.75@$2.25; *large, $2 25@$2 50*
Hickory Socket Firmer, gro ass'd. $1.60 @ $1.75; *large, $1.75 @ $2.00*
Hickory Socket Framing, gro. ass'd. $2 50@$2.75; *large, $2.65@$2.85*
File, assorted ..... *gro.* $1.00@$1.15
Hammer, Hatchet, Axe, &c. ..... 50&10%
Hand Saw, Varnished, doz. 75@80c
Not Varnished ..... 55@60c
Plane Handles:
Jack, doz. 23@25c; *Jack Bolted* .. 55@60c
Fore, doz. 35@38c; *Fore, Bolted* .. 70@75c

Hangers—
Barn Door, New Pattern, Round Groove, Regular:

Inch	3	4	5	6	8
Doz	$1.10	1.15	1.80	2.10	2.75

Barn Door, New England Pattern, Check Back, Round Groove, Regular:

Inch	3	4	5	6
Doz	$1.50	2.00	2 60	3.25

Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin 25%
Chisholm & Moore Mfg. Co.:
Advance 55%
Cleveland 60%
Baggage Car Door 50%
Elevator 40%
Railroad 55%
Car Ball Bearing, ₱ doz. pair $8.50
No. 10 Roller Bearing..doz. pr. 5.50
No. 20 Roller Bearing..doz. pr. 4.50
Nickel 50%
J. G. C. ..... 50&2&10%
Lane Bros.:
Parlor, Standard ..... 40&5&2½%
Parlor, New Model ..... 40&2½%
Barn Door, Standard ..... 60&2½%
Covered ..... 50&10&10%
Special ..... 60&5%
Lawrence Bros.:
Crown 60%
New York 60%
Sterling 60%
McKinney Mfg. Co.:
No. 2, Standard, $18 ..... 60&10%
No. 1, Special, $13 ..... 60&10%
Stowell Mfg. and Foundry Co.:
Badger 60%
Baggage Car Door 33½%
Climax Anti-Friction 50%
Elevator 40%
Interstate ..... 50&10%
Magic 50%
Matchless ..... 50&10%
Nansen ..... 50&10%
Parlor Door 50%
Railroad ..... 50&10%
Street Car Door ..... 50&10%
Steel, Nos. 300, 400, 500 ..... 40&15%
Wild West ..... 50&5%
Zenith for Wood Track ..... 50&10%
Taylor & Boggis Foundry Co.:
Kidder's ..... 50@50&10%
Van Wagoner & Williams Hdw Co.:
American Trackless ..... 33½&10%
Wilcox Mfg. Co.:
Bike Roller Bearing ..... 60&10%
C. J. Roller Bearing ..... 60&10%
Cycle Ball Bearing 50%
L. T. Roller Bearing ..... 60&10%
New Era ..... 50&10%
New Richards 60%
O. K. Roller Bearing ..... 60&10&5%
Prindle Improved ..... 60&10%
Richards' Improved ..... 60&10%
Richards' Single Track ..... 50&10%
Wilcox Dwarf Roller Bearing ..... 40&10%
Wilcox-Ives ..... 60&10%
Wilcox Tandem Roller Bearing ..... 60&10%
Wilcox Trolley Ball Bearing 40%
Wilcox Trolley Roller Bearing..50%
Wilcox Trolley Roller Bearing, Fire ..... 40&10%

Extra 50&10% often given.

Harness Menders—See *Menders.*

Harness Snaps—See *Snaps.*

Hasps—
McKinney's Perfect Hasp, ₱ doz. $1.10 ..... 40&10%
Wrought Hasps, Staples, &c.—See *Wrought Goods.*

Hatchets—
Best Brands ..... 40&10@50%
Cheaper Brands ..... 50&10@60&10&5%
Note.—Net prices often made.

Hay and Straw Knives—
See *Knives.*

Hinges—
Blind and Shutter Hinges—
Acme and Dixie Shutter:

No.	1	1½	2	2½
Doz. pair	$0.70	.65	.60	.53

Buffalo and Queen City Reversible Shutter:

No	1	1½	2
Doz pair	$0.70	.65	.60

Lull & Porter Old Style Shutter:

No.	1	1½	2	2½
Doz. pair	$0 70	.65	.60	.53

1868 Old Pattern Blind Hinge:

No.	1	3	5
Doz. pair	$0.80	1.15	2.25

Parker ..... 70@75%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50 ..... 10%
Reading's Gravity ..... 75&10%
Sargent's, Nos. 1, 3, 5 ..... 66⅔&10%
Sargent's, Nos. 11 & 13 ..... 7 &10@70&10&10%
Wrightsville H'dware Co.:
Acme, Lull & Porter ..... 65&10&5%
Buffalo Gravity Locking, Nos. 1, 3 and 5 ..... 65&10&10%
Champion Gravity Locking, No. 75 ..... 75%
1868, Old Pat'n, Nos. 1, 3 & 5 ..... 75%
Tip Pattern, Nos. 1, 3 and 5 ..... 75%
Double Locking, Nos. 20 and 25 ..... 70%
Empire, Nos. 101 and 103 ..... 65&10%
Niagara Gravity Locking, Nos. 1, 3 and 5 ..... 65&10&10%
Noiseless, Nos. 50, 60, 65 and 55 ..... 65&10&5%
O. S. Lull & Porter ..... 65&10&10%
Pioneer, Nos. 060, 45 and 5½ ..... 65&10&5%
Steamboat Gravity Locking, No. 10 .. 75%
Stanley's Steel Gravity Blind Hinges, ₱ doz. sets $1.20 ..... 20&10%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	1	2	3
Hinges with Latches	$1.90	2.50	4.25
Hinges only	1.30	1.55	3.20
Latches only	0.70	0.70	1.30

New England:

With Latch ..... doz.	$1.75@1.80		
Without Latch .... doz.	$1.40@1.45		

Reversible Self-Closing:

With Latch ..... doz.	$1.65@1.75		
Without Latch .... doz.	$1.30@1.35		

Western:

With Latch ..... doz.	$1.60@1.65		
Without Latch .... doz.	$1.00@1.05		

Spring Hinges—
Holdback, Cast Iron ..... *gro.* $9.00@10.00
Non-Holdback, Cast Iron ..... *gro.* $7.00@$7.50
J. Bardsley
Bardsley's Patent Checking 10%
Bommer Bros.:
Bommer's ..... 33⅓&5%
Chicago Spring Butt Co.:
Chicago 20%
Garden City Engine House 20%
Keene's Saloon Door 20%
Triple End 40%
Coleman Hdw. Co.:
Champion Holdback ..... ₱ gr. $10.00
J. G. C. ..... ₱ gr. $9.50
Nickel ..... ₱ gr. $9.00
Lawson Mfg. Co.:
Matchless 25%
Matchless Pivot 40%
Payson Mfg. Co.:
Oblique, Dbl. Acting ..... 50@50&5%
Stover Mfg. Co.:
Ideal, No. 16, Detachable, ₱ gr. $12.50
Ideal, No. 4 ..... ₱ gr. $9.00
New Idea No. 1 ..... ₱ gr. $9.00
New Idea, Double Acting 45%
Van Wagoner & Williams Hdw. Co.:
Acme, Wrt. Steel 30%
Acme, Brass 20%
American 30%
Columbia, No. 14 ..... ₱ gr. $9.00
Columbia, No. 18 ..... ₱ gr. $35.00
Columbia, Adjustable 30%
Gem, new list 25%
Clover Leaf ..... ₱ gr. $12.50
Oxford, new list 25%

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges, &c., list Mar. 15, 1898:
Light Strap Hinges 66⅔%
Heavy Strap Hinges 70%
Light T Hinges ..... 50&10%
Heavy T Hinges ..... 60&10%
Extra Heavy T Hinges ..... 66 } *Extra* 20%@25%
Hinge Hasps 45
Stanley's Corrugated Heavy Strap 70%
Stanley's Cor. Ex. Heavy T. 66⅔%
NOTE.—*Change in base discounts.*
Rolled Plate ..... 70%@70&5%
Screw Hook and Strap: *6 to 12 in.* ..lb 3¼@3½c; *14 to 20 in.* ..lb. 3¼@3½c; *22 to 36 in.* ..lb 3 @3¼c
Screw Hook and Eye:
¾@1 inch ..... lb 6½@5¾c
⅝-inch ..... lb 6½@6¾c
½-inch ..... lb. 8½@8¾c

Hoes—
Eye—
Scovil and Oval Pattern ..... 60&5@60&10&5%
Grub, list Feb. 23, 1899 ..... 65@65&10%
D. & H. Scovil ..... 35@35&5%
Handled—
Aug. 1, 1899, List:
Field and Garden ..... 75&2%
Ladies', Boys', Toy and Onion ..... 70&10&10%
Street and Mortar ..... 75&7½&2%
Cotton ..... 70&10&10&5&2%
Planters' ..... 70&30%
Weeding 75%
Note.—Manufacturers and jobbers use a diversity of lists, and often sell at net prices.
Ft. Madison Crucible Garden Hoe ..... 75&2%
Ft. Madison Crescent Cultivator Hoe, per doz ..... 75&10&2%
Ft. Madison Mattock Hoe, ₱ doz $4.50
Ft. Madison Sprouting Hoe, ₱ doz. $4.80
Ft. Madison Dixie Tobacco Hoe ..... 75&20%
Kretsinger's Cut Easy, per doz ..... 75&2%
Warren Hoe 60%

Hog Rings and Ringers—
See *Rings and Ringers.*

Hoisting Apparatus—
See *Machines, Hoisting.*

Hollow Ware—
See *Ware, Hollow.*

Holders—
Bit—
Angular, ₱ doz. $24.00 ..... 45&10%
File and Tool—
Nicholson File Holders and File Handles ..... 33⅓&5%

Hooks—
Cast Iron—
Bird Cage, Reading } 50&10@60%
Bird Cage, Sargent's List } 50&10@60%
Clothes Line, Sargent's List ..... 35&10%
Ceiling, Sargent's List ..... 40@40&10%
Clothes Line, Stowell's 70%
Clothes Line, Reading List ..... 65&10@65&10&10%
Coat and Hat, Stowell's 70%
Coat and Hat, Reading ..... 70@75%
Coat and Hat, Sargent's List ..... 35&10%
Coat and Hat, Wrightsville ..... 65&10%
Harness, Reading List ..... 70&10@75%

Wire—
Belt ..... 75@75&10%
Atlas, Coat and Hat ..... 50@50&10%
Czar Harness ..... 50&10%
Wire Coat and Hat:
Acme ..... 60@60&5%
B. B. ..... 70@70&5%
V Brace, Chief and Czar ..... 50&10%
Gem ..... 50&10%
Bright Wire Goods—See *Wire.*

Wrought Iron—
Box, or Case, Octagon Steel ..... *doz.* $2.10@2.20
Cotton ..... *doz.* $1.05@1.15
Picture, T. & S. Mfg. Co 75%
Tassel, T. & S. Mfg. Co ..... 50&10%
Wrought Staples, Hooks, &c.—See *Wrought Goods.*

Miscellaneous—
Bush, Light, doz. $5.50; *Medium,* $6.00; *Heavy,* $6.50

Grass ..... Nos.	1	2	3	4
Best	$1.50	1.75	2.00	
Common	$1.40	1.50	1.50	1.75

Potato and Manure ..... 75&15%
Whiffletree ..... lb. 4½c
Hooks and Eyes:
Brass ..... 60&10&10@70%
Malleable Iron ..... 70&5@70&10%
Covert Saddler's Works' Self Locking Gate and Door Hook ..... 60&10%
Crown Picture ..... 50&10%
Bench Hooks—See *Bench Stops.*
Corn Hooks—*See Knives, Corn.*

Horse Nails—See *Nails, Horse*

Horseshoes—
See *Shoes, Horse.*

Hose, Rubber—
Garden Hose, ¾-inch:

Competition ..... *ft.*	4¼@	4¾c	
3-ply Standard ..... *ft.*	5	@ 6	c
4-ply Standard ..... *ft.*	8	@ 9	c
3-ply extra ..... *ft.*	9	@10	c
4-ply extra ..... *ft*	11	@12	c

Cotton Garden, ¾-in., coupled:

Low Grade ..... *ft.*	6	@7	c
Fair quality ..... *ft.*	8	@9	c

Irons—Sad—
From 4 to 10 ..... *lb* 3¼@3¾c
B. B. Sad Irons ..... *lb.* 3½@4c
Chinese Laundry ..... *lb.* 5@5¼c
Chinese Sad ..... *lb.* 3½@3¾c
Mrs. Potts', per set:

Nos.	50	55	60	65
	90@$1.00	78@93c	95@1.10	89@1.03

New England Pressing ..lb.. 3½@3¾c

Soldering—
Soldering Coppers ..... *lb.* 28@30c
Covert Mfg. Co ..... 20&2%

Pinking—
Pinking Irons ..... *doz.* 50@60c

Jack Screws—See *Screws.*

Jacks, Wagon—
Covert Mfg. Co., Steel ..... 45&2%
Daisy 70%
Ill. I. & B. Co Common ..... 70@75%
Lockport ..... 40@40&10%
Victor 60%
Lane's Steel 33⅓%

Kettles—
Brass, Spun, Plain, list Jan. 10, '99 ..... 15@20%
Enameled and Cast Iron—See *Ware, Hollow.*

Knife Sharpeners—
See *Sharpeners, Knife.*

Knives—
Butcher, Shoe, &c.—
Dick's Butcher Knives 40%
Foster Bros.' Butcher, &c 30%
Nichols' Butcher Knives 50%
Hay and Straw—See *Hay Knives.*

Corn—
Ft. Madison Cut-Easy, ₱ doz $3.25

Drawing—
Standard List ..... 70&10@75&....%
Adjustable Handle ..... 25@33⅓%
Bradley's 30%
Swan's ..... 70&10&2½%
Watrous ..... 30&10@40%
L. & I. J. White ..... 20&5&25%
Cautelo's Folding ..... 50@50&5%

Hay and Straw—
Blizzard ..... $5.75@6.00
Iwan's Sickle Edge ..... ₱ doz. $11.50
Lightning $7.50

Mincing—
Buffalo ..... ₱ gro. $15.00
Smith's, ₱ doz., Single, $2; Double, $3 ..... 45&50%

Miscellaneous—
Farriers' ..... *doz.* $2 00@3.00
Wostenholme's ..... ₱ doz. $3.00@3.25

Knobs—
Base, 2¼-inch, Birch, Rubber tip, gro ..... $1.50@1.55
Carriage, Jap, all sizes ..*gro.* 30@33c
Door, Mineral ..... *doz.* 83@88c
Door, Por. Jap'd ..... *doz.* 92@97c
Door, Por. Nickel ....*doz.* $2.10@2.20
Bardsley's Wood Door, Shutter, &c ..10%
Picture, Sargent's ..... 60&10%
Snow's Victor ..... 50&10%

Ladders, Step—
Handy Ladder Works:

Length. Feet.	Extended Length. Feet.	Per doz.
4	7	$16.00
5	9	19.50
6	11	24 50
7	13	29.50
8	15	34.00
9	17	39.00
10	19	43.00
11	21	46.50
12	23	51.00

Ladles—Melting—
L. & G. Mfg. Co 60%
P., S. & W ..... 40@40&10%
Reading ..... 50&10%
Sargent's ..... 40@40&10%

Lanterns—Tubular—
Regular Tubular ..... *doz.* $4.00@4.50
Side Lift Tubular ....*doz.* $4.25@4.75
Square Lift Tubular..doz. $4.21@4.75
Other Styles ..... 60&10@40&10&5%
Monrose Side Lift Tubular, doz. $8.50 ... 45&10%

Bull's Eye Police—
2¼-inch flash light ....*doz.* $3.50@3.75
3-inch flash light ..... *doz.* $4.00@4.25
2¼-inch regular ..... *doz.* $3.25@3.50
3-inch regular ..... *doz.* $3.50@3.75

Latches, Thumb—
Roggin's Latches.....doz. 35c@45c

Lawn Mowers—
See *Mowers, Lawn.*

Leaders, Cattle—
Small.....doz. 45c; large, 55c
Covert Mfg. Co.....45&2%

Lemon Squeezers—
See *Squeezers, Lemon.*

Lifters, Transom—
Dickson:
3 x 4 ft. x ¼.....₱ 100 $11.00
Other sizes Iron.....70&10%
Other size, Brass and Bronze.....70%
Excelsior.....60@60&10%
Payson's:
Solid Grip Nos. 643 and 644, ₱ 100.....$11.00
Bronzed Iron.....70%

Lines—
Wire Clothes, Nos...	*18*	*19*	*20*
100 feet.....	*$3.50*	*3 75*	*2 25*
75 feet.....			*$1.75*

Ostrawan Mills.
Crown Solid Braided Chalk.....33⅓%
Mason's, No. 0 to No. 5.....33⅓%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50; ₱ gr.....30%

Locks, &c.— Cabinet—
Cabinet Locks.....33⅓@33⅓&c7½%

Door Locks, Latches, &c.—
[Net prices are very often made on these goods.]
Reading Hardware Co.....40%
R. & E. Mfg. Co.....4& & 0%
Sargent & Co.....40@40&10%
Slaymaker-Barry Co.....30@35%
Snow's Victor.....50&10%

Elevator—
Stowell's.....33⅓%

Padlocks—
Wrought Iron, list Dec. 3, '97.....70@70&10%
Dog Collar, S. B. Co.....40%
R. & E. Mfg. Co. Wrt Steel and Brass.50%
S. B. & Co.....40%

Sash, &c.—
Fitch's Bronze and Brass.....66⅔%
Fitch's Iron.....70%
Ives' Patent.....62½&10@66⅔&10%
Payson's Perfect.....70%
Payson's Signal (new list).....75%
Reading.....60&10&10@70%

Machines—
Boring—
Without Augers.

	Upright.	Angular.
Improved No. 3...	$4.25	No. 1 $5.00
Improved No. 4...	3.75	No. 2 3.38
Improved No. 5...	2.75	
Jennings'.....	2.50	3.00
Millers' Falls.....		4.75
Snell's, Rice's Pat.	2.50	2.75
Swan's, No. 500..	5.10	No. 200 6.45

Hoisting—
Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.20%

Washing—
Wayne American, ₱ doz. $27.00
Western Star, No. 2, ₱ doz.....28.00
Western Star, No. 3, ₱ doz.....30.00
St. Louis, No. 41, ₱ doz..60.00
(Carload lots 10% off, freight allowed.)

Mallets—
Hickory.....45&5@50&5%
Lignumvitæ.....45&5@50&5%
Tinners', Hickory and Applewood, doz.....50@55c
Fiber Head Stearns'.....30&10%

Mats—
Door—
Elastic Steel (W. G. Co.).....10%

Mattocks—
List Feb. 23, 1899.....65@65&10%

Meat Cutters—
See *Cutters, Meat.*

Milk Cans—See *Cans, Milk.*

Mills— Coffee—
Box and Side, list Jan. 1, '88.....60&5@50&10&5%
Net prices are often made on some goods which are lower than above discounts.
Enterprise Mfg. Co., list Jan. 17, '93..30%
National, list Jan. 1, '94.....30%
Parker's Columbia and Victor....60&10%
Parker's Upright.....30&10@40%
Swift, Lane Bros.....30%

Mincing Knives—
See *Knives, Mincing.*

Molasses Gates—
See *Gates, Molasses.*

Money Drawers—
See *Drawers, Money.*

Mowers, Lawn—
Net prices are generally quoted.

	10	*12*	*14*	*16-inch*
Cheap.....				*$1.85@$2.10*
Good.....	*3.25*	*3.50*	*3 75*	*4.00*
High Grade	*4 25*	*4.50*	*4 75*	*5 00*

Pennsylvania and Continental 60&10&5%
Quaker City.....70&5%
Great American.....70&5%
Philadelphia:
Style S. M. S., C., K., T.....70&10%
Style A, all Steel.....60&10%
Style E, Low Wheel.....60&10%
Style E, High Wheel.....70&10%
Drexel and Gold Coin, low list.....50%

Nails—
Cut and Wire See Trade Report.
Wire Nails and Brads, Papered. List July 20, 1899.....80@80&10%
Hungarian. Finishing, Upholsterers', &c. See Tacks.

Horse—
Nos.	6	7	8	9	10
A. C.....	25¢	23¢	22¢	21¢	21¢

40&5%

Capewell.....	19¢	18¢	17¢	16¢	16¢10&5%
C. B. K.....	25¢	25¢	23¢	21¢	21¢...40%
Champlain...	28¢	26¢	25¢	24¢	23¢

40&5&3%

Maud S.....	25¢	23¢	22¢	21¢	21¢...50%
Nonpareil....	23¢	21¢	20¢	19¢	18¢...40%
Putnam.....	23¢	21¢	20¢	19¢	18¢.33⅓%
Standard....	23¢	21¢	20¢	19¢	18¢...40%
Star.....	23¢	21¢	20¢	19¢	18¢.

35& 5%

Vulcan.....	23¢	21¢	20¢	19¢	18¢....

25&10%

Picture
	1½	*2*	*2½*	*3*	*3½ in.*
Brass Head.	*.45*	*.60*	*.70*	*.95*	*1.00 gro.*
Por. Head...	..	*1.10*	*1.10*	*1.10*	*.. gro.*

Nippers, See *Pliers and Nippers.*

Nut Crackers—
See *Crackers, Nut.*

Nuts—
List Feb. 1, '99.
Cold Punched. Off
Mfrs. or U S. Standard list.
Hexagon, plain.....*3.90@4.10c*
Square, plain.....*3.90@4.10c*
Square, C. T. & R.....*3.70@3.90c*
Hexagon, C. T. & R.....*4.20@4.40c*
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd. Square.....*4.30@4.50c*
Hexagon.....*4.50@4.70c*

NOTE.—*Tapped Nuts are now 2-10c. higher than above.*

Oakum—
Best or Government.....lb. 5¾c
Navy.....lb. 4¾c
U. S. Navy.....lb. 5¼c
Plumbers' Spun Navy.....2¾c
In carload lots ¼c lb. off f.o b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—
Brass and Copper.....40&10@50%
Tin or Steel.....60&10@10@70&5%
Zinc.....60&5@60&10%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4; No. 3, $4.40 ₱ doz.20%
Malleable, Hammers' Old Pattern, same list.....50&10%
Wilmot & Hobbs Mfg. Co....70@70&10%

Openers—
Can—
French.....doz. 25c
Iron Handle.....doz 25@27c
Sprague, Iron Hdle...per doz 35@40c
Sardine Scissors...doz. $1.75@$3.00
National, ₱ gro.....$1.75@$2.00
Stowell's.....per doz. 40@45c

Egg—
Nickel Plate.....per doz, $2.00
Silver Plate.....per doz., $4.00

Packing—
Rubber—
Standard, fair quality....70&10@75%
Inferior quality.....75&10@80%
Extra.....60&5@60&10&5%
Jenkins' Standard, ₱ lb 80¢....25@25&5%

Miscellaneous—
American Packing.....9@10c lb.
Cotton Packing.....13@14c lb.
Italian Packing.....10½@11¼c lb.
Jute.....5@5½c lb.
Russia Packing.....12@13c lb.

Pails—
Creamery—
S. S. & Co., with gauges.. No 1 $6.50; No. 2, $6.75 ₱ doz.

Galvanized—

Inch.....	*10*	*12*	*14*
Water, Standard, gro.....	*$23 00*	*$26 00*	*$29.00*
Water, Regular..	*18 00*	*21 00*	*24.00*
Water, Heavy....	*22.00*	*25.50*	*28.00*
Fire, Rd. Bottom, gro.....	*31.00*	*33.00*	*35.00*
Well, gro.....	*27.00*	*29.00*	*31.00*

Pans—
Dripping—
Large Sizes.....lb. 4¾c
Small Sizes.....lb. 5¼c

Fry—
Standard List.....75&10@80%

Roasting and Baking—
Regal, S. S. & Co., ₱ doz., Nos. 5, $4.50; 10, $5.00; 20 $5.50; 30, $6.00
Simplex, ₱ gro., No. 40, $30.00; 50, $34.50; 60 $39 00; 140, $33.00; 150, $37 50; 160, $43.00.

Paper—
Building Paper—
	Per roll
Rosin Sized Sheathing:	*500 sq. ft.*
Light wt., 12 sq. ft. to lb.....	*$0 40@0.45*
Medium wt., 12 sq. ft. to lb.....	*$0.60@0.65*
Heavy wt., extra quality.....	*$0.95@1.05*
Medium Grades Water Proof Sheathing.....	*$0 80@1.25*
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton.....	*$45.00@50.00*
York Haven Waterproof Sheathing.....	$1 35@1 75

Tarred Paper.
1 ply (roll 500 sq ft), ton..$35 00@40.00
2 ply, roll 100 sq. ft.....*90c*
3 ply, roll 100 sq. ft.....*$1.20*

Sand and Emery—
List Dec. 23, 1899...*50c&10@50c&10c&10%*
see *Trade Report.*

Parers—
Apple—
Advance.....₱ doz. $4.50
Baldwin.....₱ doz. $5.00
Bonanza.....each $5.00
Dandy.....each $7.50
Eureka, 1898.....each $16.00
Family Bay State.....₱ doz. $12.00
Hudson's 1.1 tle Star.....₱ doz. $4.00
Hudson's Rocking Table....₱ doz $5.50
Improved Bay State ₱ doz. $27.00@30.00
New Lightning.....₱ doz. $5.50
Reading 72.....₱ doz. $4.00
Reading 78.....₱ doz. $7.00
Turn Table '98.....₱ doz. $5 50
White Mountain.....₱ doz. $4.00

Potato—
Saratoga.....₱ doz. $5.50
White Mountain.....₱ doz. $4.50

Paris Green—
Arsenic, kegs or casks.....lb. 13 c
Kegs, 100 to 175 lb.....lb. 13½c
Kits, 14, 28, 56 lb.....lb. 14½c
Paper boxes 2 to 5 lb.....lb. 14½c
Paper boxes, 1 lb.....lb. 15 c
Paper boxes, ½ lb.....lb. 16 c
Paper boxes, ¼ lb.....lb. 17 c

Picks and Mattocks—
List Feb 23, 1899.....65@65&10%

Pinking Irons—
See *Irons, Pinking.*

Pins—
Escutcheon—
Brass.....60@60&5%
Iron, list Nov. 11, '85.....60@60@5%

Pipe, Cast Iron Soil—
Factory Shipments.
Standard, 2-6 in.....50@50&10%
Extra Heavy, 2 6 in.....50&10@60%
Fittings.....60@60&10%

Pipe, Wrought Iron—
Black Merchant Pipe—Factory Shipments in Carload;
⅛, ¼, ⅜-inch.....25&10&5&2½%
½-inch.....25&10&10&10&5&2½%
¾-inch.....30&10&10&10&10&5&2½%
1 to 4 inch..... 30&10&10&1 &10&10%
4½ to 12 inches.....30&10&10&10&10%
From Jobbers in Carload Lots.
⅛ to ⅜-inch.....25&10%
½-inch.....25&10&10&10%
¾-inch.....25&10&10&10&10&5%
1 to 4 inch..... 25&10&10&10&10&7½%
4½ to 12 inches.....25&10&10&10&10%

Planes and Plane Irons—
Wood Planes—
Molding.....40&2½@40&5%
Bench, First quality.....45&10@45&10&5%
Bench, Second quality.....50&10@50&10&5%
Bailey's (Stanley R. & L. Co) 50&10@50&10&10%
Gage Self Setting.....35%

Iron Planes—
Bailey's (Stanley R. & L. Co).....50&10@50&10&10%
Chaplin's Iron Planes.....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....25&10@25&10&10%
Sargent's.....50&10@60%

Plane Irons—
Wood Bench Plane Irons..35@35&5%
Buck Bros.....30%
Butcher's.....$5.00@5.25 to &
Stanley R. & L. Co...50&10@50&10&10%
L. & J. White.....20&5@25%

Plates—
Felloe.....lb 3½@3¾c
Self-Sealing Pie Plates (S. S. & Co.), ₱ doz. $2.00.....50%

Pliers and Nippers—
Button Pliers.....65&10@70&10%
Gas Burner, per doz., 5 in., $1.15@ $1.20; 6 in., $1.35@$1.45.
Gas Pipe.. 7 8 10 12-in.
$1.75 $2.00 $2.75 $3.75
Acme Nippers.....40@40&5%
Bernard's:
Parallel Pliers, &c.....33⅓%
Parkgon Pliers.....50%
Lodi Pliers.....50%
Elm City Fence Pliers.....33⅓%
Heller's Farriers' Pincers and Tools.....40@40&5%
Morrill's Parallel, ₱ doz. $12.00...30&5%
P., S. & W. Cast Steel.....30&10@40%
P., S. & W. Tinners' Cutting Nippers.....40@40&5%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds.....40%

Plumbs and Levels—
Plumbs and Levels.....70¢10¢10@75¢10¢10%
Disston's.....70%
Pocket Levels.....75&10&10@75&10%
Stanley R. & L. Co.....70&10&10@75&10%
Stanley's Duplex.....25&10@25&10&10%
Woods' Extension.....33⅓%

Poachers, Egg—
Buffalo Steam Egg Poachers, ₱ doz., No. 1, $7.20; No. 2, $11.00; No. 3, $11.00; No. 4, $14.50.....50%

Points, Claziers'—
Bulk and 1 lb. papers..lb. 10¼@11¼c
½-lb. papers.....*lb. 11 @12 c*
¼-lb. papers.....*lb. 11½@12½c*

Pokes, Animal—
Ft. Madison Hawkeye.....₱ doz. $3.25
Ft. Madison, Western.....₱ doz. $3.75

Police Goods—
Manufacturers' Lists.....25@25&5%
Tower's.....25%

Polish—Metal—
Prestoline Liquid, No. 1 (¼ pt.), ₱ doz. $3.00; No. 2 (1 qt.), $9.72.....40%
Prestoline Paste.....33⅓@40%
U. S. Metal Polish Paste, 3 oz. boxes, ₱ doz. 50¢; ₱ gr. $4.50; ½ ℔ boxes, ₱ doz. $1.25; 1 ℔ boxes, ₱ doz. $2.25.
U. S. Liquid, 8 oz. cans, ₱ doz. $1.25; ₱ gr. $12.00.
Barkeepers' Friend Metal Polish, ₱ doz. $1.75; ₱ gr. $18.00.
Wynn's White Silk, ¼ pt. cans, ₱ doz. $1.50

Stove—
Black Eagle Benzine Paste, 5 ℔ cans.....₱ ℔ 10¢
Black Eagle, Liquid, ¼ pt. cans.....₱ doz. 75¢
Black Jack Paste, ¼ ℔ cans, ₱ gro. $9.00
Ladd's Black Beauty, gr. $10.00.....50%
Joseph Dixon's, ₱ gr. $5.75.....10%
Dixon's Plumbago.....₱ ℔ 8¢
Fireside.....₱ gr. $2.50
Gem, ₱ gr. $4.50.....10%
Japanese.....₱ gr. $3.50
Jet Black.....₱ gr. $3.50
Peerless Iron Enamel, ¼ pt. cans.....₱ doz. $1.50
Wynn's Black Silk, 5 ℔ pail.....₱ ℔ 12¢
Wynn's Black Silk, ½ ℔ box, ₱ doz. $1.00
Wynn's Black Silk, 5 oz. box, ₱ doz. $0.75
Wynn's Black Silk, 8 oz. liq., ₱ doz. $1.00

Poppers, Corn—
Round or Square:
1 qt.....*gro. $7 00@$8.00*
1½ qt.....*gro 9 50@ 10 50*
2 qt.....*gro. 10.50@ 11.50*
Quincy Corn Popper, 1 qt., ₱ gr. $16.50; 2 qt., $19.00.

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Potato Parers—
See *Parers, Potato.*

Pots— Glue—
Enameled.....40¢5@40¢10%
Tinned.....40@40¢5%

Powder—
In Canisters:
Duck, 1 lb. each.....45c
Fine Sporting, 1 lb each.....75c
Rifle, ½-lb. each.....15c
Rifle, 1-lb. each.....25c
In Kegs:
Duck, 6¼-lb. kegs.....$2.25
Duck, 12½-lb. kegs.....$4.25
Duck, 25-lb kegs.....$8.00
Rifle, 6¼-lb kegs.....$1.25
Rifle, 12½-lb. kegs.....$2.25
Rifle, 25-lb. kegs.....$4.00
King's Smokeless:
Keg (25 ℔ bulk).....$20 00
Half Keg (12½ ℔ bulk).....$10.25
Quarter Keg (6¼ ℔ bulk).....$5.25
Canister (1 ℔ bulk).....$0.90
Case, 1 ℔ Canisters (50 ℔ bulk).....$45.00
Half Case, 1 ℔ Canisters (25 ℔ bulk).....$22.75
(25&10&2%)
King's Semi-Smokeless:
Keg (25 ℔ bulk).....$10.00
Half Keg (12½ ℔ bulk).....$5.25
Quarter Keg (6¼ ℔ bulk).....$2.75
One Pound Can, bulk.....$0.50
(20&2%)

Presses—
Fruit and Jelly—
Enterprise Mfg. Co.....20@25%

Pruning Hooks and Shears—See *Shears.*

Pullers, Nail—
Crown, ₱ doz. $18.00.....50%
Crown Prince, ₱ doz. $15.00.....50%
Cyclops.....40@40&10%
Diamond B, No. 2, doz. $22.; No. 3, $11.....40%
Eureka, 5 ℔, doz., $16.00; 8 ℔ $15...40%
Giant, No. 1, ₱ doz. $18; No. 2, $16.50; No. 3, $15.....40%
National, ₱ doz. $24.00.....50%
Miller's Falls, No. 3, per doz. $12.00.....15&10%
Pelican, ₱ doz. $9.00.....4- &10%
Scranton, No. 1 and 2, ₱ doz.....$9.00
Scranton, No. 3, ₱ doz.....$8.50

Pulleys—

Hay Fork, Swivel or Solid Eye ..... doz. $1.60@2.00
Hay Fork, Stowell's Anti-Friction, 5-in. Wheel, ₱ doz. $12.00..... 40%
Hot House, Awning, &c.....60@60&10%
Japanned Clothes Line.....60@60&10%
Japanned Screw.....70&10&10%
Japanned Side .....70&10&10%
Stowell's Ceiling or End, Anti-Friction 60%
Stowell's Dumb Waiter, Anti-Friction ..... 60&10%
Stowell's Electric Light.....60%
Stowell's Side, Anti-Friction.....60&10%

Sash Pulleys—

Common Sense, 1¾ in.... ₱ doz., 20¢; 2 in., 22¢.
Empire.....1¾ in., 17¢; 2 in., 19¢
Grand Rapids All Steel Noiseless....40%
Ideal No. 13.....1¾ in., ₱ doz., 20¢
Improved.....1¾ in., 17¢; 2 in., 19¢
Niagara.....1¾ in., 16¢; 2 in., 19¢
No. 26, Troy.....1¾ in., 16¢; 2 in., 19¢
Star.....1¾ in., 16¢; 2 in., 19¢
Acme.....1¾ in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 7, 2¼ in ..... ₱ doz. 25¢
No. 9, 1¾ in..... ₱ doz. 20¢
Extra for Plated Finish..., ₱ doz. 20¢
Extra for Anti-Friction Bronze Bushing..... ₱ doz 10¢
Tackle Blocks—See *Blocks*.

Pumps—

Cistern.....60@60@5%
Pitcher Spout.....70¢10@75%
Pump Leathers, all sizes.....gro. $6.00
Flint & Walling's Fast Mail.....50@55%
Flint & Walling's Pitcher Spout. 70&10%
Loud's Suction Pumps, U. H. Co.....20%
Myer's Pumps, low list.....50%
Contractors' Rubber Diaphragm Non-chokable, B. & L. Block Co.....20%

Punches—

Revolving (4 tubes)...doz. $4.00@4.50
Saddlers' or Drive, good..doz 65@70c
Spring, good quality.....$2.00@2.25
Bemis & Call Co.'s Cast Steel Drive....50%
Bemis & Call Co.'s Check.....55%
Bemis & Call Co.'s Spring.....50%
Niagara Hollow Punches.....45%
Niagara Solid Punches.....55%
Spring, Leach's Pat.....15%
Steel Screw, B & K. Mfg. Co.....40%
Tinners' Hollow, P., S. & W. Co..... 35@35&5%
Tinners' Solid, P., S. & W.Co., ₱ doz., $1.44.....55%

Rail—

Barn Door, &c.—

	½	⅝	¾
Barn Door, Light..In			
100 feet.....	*$2.00*	*$2.50*	*$3.00*

B. D., for N. E. Hangers:

	Small	*Med.*	*Large.*
100 feet.....	*$2 20*	*2.70*	*3.20*

Sliding Door, Bronzed Wr't Iron, ft. 6¼c
Sliding Door, Iron Painted....2½@3c
Sliding Door, Wrought Brass, 1¼ in..... lb. 36c..30%
Cronk's Double Braced Steel Rail, ₱ foot..... 3½¢
Lanes' O. N. T., ₱ 100 ft., 1 inch....$3.00
Lanes' Standard, ₱ 100 ft..... .....4.25
Lawrence Bros'..... ₱ ft. 4½¢
McKinney's None Better..... ₱ ft. 3¢
McKinney's Standard..... ₱ ft. 3½¢
Moore's, Wr't. Bracket, Steel..... 3½¢
Stowell's Steel Rail, Plain 15%

Rakes—

Aug 1, 1899, List:
Cast Steel..... 70¢5¢2%
Malleable..... 66⅔%
Fort Madison Red Head Lawn.....$3 25
Fort Madison Blue Head Lawn.....$3 00

Rasps, Horse—

Disston's 75%
Heller Bros.....60&10&10%
McCaffrey File Co. Horse Rasps..... 60&10&5%
New Nicholson Horse Rasp.....70&10%
See also *Files*.

Razors—

Fox Razors, No 42... ₱ doz. $20.00 } 40%
Fox Razors, No 44... ₱ d z $24.00 } dis.
Fox Razors, No. 82, Platina, ₱ doz $24.00 }

Razor Strops—

See *Strops, Razor*.

Reels—

Fishing—

Hendryx Aluminum, German Silver, Gold, Bronze, Silver, Rubber, Populo and Salmon, Single Action, Multiplying and Quadruple, all sizes.....25%
Hendryx Single Action Series, 102P and PN, 202P and PN, 102 PR and PRN, 202 PR and PRN, 304 P and PN, 00304P and PN, 502 and 502N, 802 and 802N, 02084N, Competitor.50%
Hendryx Multiplying and Quadruple Series, 3004N and PN, 4N and PN, 2904N, 2904P and PN, 002904PN, 0924 and 0924N, 5009N and PN.....40&10%

Registers—

Association Prices:
Black Japanned.....30%
White Japanned.....25%
Bronzed Finishes.....30%
Nickel Plated.....30¢10%
Electro Plated in Brass, &c..30¢10%
White Porcelain.....20%
Solid Brass and Bronze Metal..20%
Note.—The above prices are often cut by jobbers and outside manufacturers.

Riddles, Grain or Sand—

16 in. per doz.....$2.00@$2.25
17 in. per doz.....$2.25@$2.50
18 in. per doz.....$2.50@$2.75

Rings and Ringers—

Bull Rings—

	2	2½	3 Inch.
Steel.....	*$0 75*	*0.83*	*0.88 doz.*
Copper.....	*1.10*	*1.30*	*1.50 doz.*

Hog Rings and Ringers—

Hill's Rings....gro. boxes, $4.50@5.00
Hill's Rings, C. I.....doz. 75c
Blair's Rings.....₱ gr. $5.75@6.00
Blair's Ringers..... ₱ doz. $0.90@1 00
Brown's Rings..... ₱ gro. $6.00@6.25
Brown's Ringers..... ₱ doz $1.00@1.10¢
Perfect Rings..... ₱ gro. $9.00@9.50
Perfect Ringers. ₱ doz..... $1.25@1.35
Rapid Rings..... ₱ gro. $6.00
Rapid Ringers..... ₱ doz. $3.50

Rivets and Burrs—

Copper.....40¢10@50%
Iron or Steel:
Tinners'.....52½@53½¢10%
Miscellaneous .....52½@53½¢10%

Rivet Sets—See *Sets*.

Roasting and Baking Pans—See *Pans, Roasting and Baking*.

Rollers—

Acme, Stowell's Anti-Friction 50%
Barn Door, Sargent's list..60&10&10@70%
Lane's, Stay ..... 33¼&5%
Stowell's Barn Door Stay... ₱ doz. $1.25

Rope—

NOTE.—*Carload lots, except on Jute Rope, ¼c. per lb. less than the following prices, which are for small lots.*
Manila, 7-16 in. and larger. lb. .. @15½c
Manila.....⅜-inch lb. .. @16 c
Manila..¼ and 5-16 in. lb. .. @18¼c
Manila, Tarred Rope, 15 thread.....lb .. @15½c
Manila Hay Rope Med'm. lb .. @15½c
Sisal, 7-16 in. and larger. lb. .. @10½c
Sisal ....⅜-inch. lb... @11 c
Sisal.....¼ and 5-16 in. lb. .. @11½c
Sisal, Hay Rope, 2 to 10 ply.....lb. .. @10½c
Sisal, Tarred, Medium Lath Yarn..... .....lb... @10 c
Cotton Rope
Best, ¼-in. and larger..lb. 13@14 c
Med'm, ¼-in. and larger lb. 10@12 c
Com., ¼-in. and larger.lb. 8@10 c
Jute Rope, No. 1, ¼ in. and up ....lb. .. @7 c
Jute Rope No. 2, ¼ in. and up..... .....lb. .. @6¼c

Wire Rope—

Galvanized .....20¢2½%
Plain.....30¢2½%

Ropes, Hammock—

Covert Mfg. Co.....45&2%
Covert Saddlery Works.....60%

Rules—

Boxwood..75¢10¢10¢10@75¢10¢10 ¢10¢10%
Ivory ...40¢10¢10@40¢10¢10¢10¢10%
Lufkin's Steel.....50&10%
Lufkin's Lumber ... .50&10%
Stanley R. & L. Co.:
Boxwood...75&10&10@75&10&10&10%
Ivory..... .35&10&10@35&10&10&10%

Sad Irons—See *Irons, Sad*.

Sand and Emery Paper and Cloth—

See *Paper and Cloth*.

Sash Cords—See *Cord, Sash*.

Sash Locks—See *Locks, Sash*.

Sash Weights—

See *Weights, Sash*.

Sausage Stuffers or Fillers—See *Stuffers or Fillers, Sausage*.

Saw Frames—

See *Frames, Saw*.

Saw Sets—See *Sets, Saw*.

Saw Tools—See *Tools, Saw*.

Saws—

Atkins' Circular..... ..... 50@50&10%
Atkins' Band .....50&10@60%
Atkins' Cross Cuts ..... 35&5%
Atkins' Mulay, Mill and Drag.....50&10%
Atkins' One-Man Saw..... .....40%
Atkins' Wood Saws 40%
Atkins' Hand, Compass, &c..... ....40%
Disston Circular Solid and Inserted Tooth..... ... 50%
Disston Band 2 to 14 in. wide.....80%
Disston Band ¼ to 1¼..... .....70%
Disston Crosscuts.....45@45&10%
Disston Narrow Crosscuts....50@50&10%
Disston Mulay, Mill and Drag.....50%
Disston Framed Woodsaws..35@35&7½%
Disston Woodsaw Blades....40@40&7½%
Disston Woodsaw Rods..... 20%
Disston Handsaws, Nos. 12, 99, 9 16, d100, D8, 120, 79, 77, 8.....25@25&7½%
Disston Hand Saws, Nos 7, 107, 10 ½, 3, 1, 0, 00, Combination....30@30&7½%
Disston Compass Keyhole, &c.25@25&7½%
Disston Butcher Saws and Blades..... 35@35&7½%
C. E. Jennings & Co.'s.....25&5@30&5%
Peace Circular and Mill..... .....50%
Peace Cross Cuts, list Jan. 1, '99.....50%
Peace Hand, Panel and Rip.....30%
Richardson's Circular and Mill.....50%
Richardson's X Cuts, list Jan. 1, '99..50%
Richardson's Hand, &c.....30%
Shaonds' Circular Saws.....50%
Simonds' Crescent Ground Cross Cut Saws..... .....35%
Simonds' One-Man Cross Cuts....40&10%
Simonds' Gang Mill, Mulay and Drag Saws.....45@45&5%

Hack Saws—

Disston Concave Blades..... .....35%
Disston Keystone..... .....30%
Disston Hack Saw Frames.. .....30%
Griffin's complete.....50@50&10%
Griffin's Hack Saw Blades.....50@50&10%
Star Hack Saws and Blades..... 15&10%

Scroll—

Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18: with boring attachment, $20..... 20%
Lester, complete, $10.00.....15&10%
Rogers, complete $4.00.....15&10%

Scale Beams—

See *Beams, Scale*.

Scales—

Family, Turnbull's ....30@30&10%
Hatch, Counter:
Platform, 4 lb. by ¼ oz...doz. $5.75
Two Platforms, 8 lb. by ½ oz..... doz. $16 00
Union Platform, Plain....$2.00@2.10
Union Platform, Striped..$2.15@2 25
Chatillon's Eureka.....25%
Chatillon's Favorite.....40%
Chatillon's Grocers' Trip Scales.....50%
Pelouze Scales—Family, Candy, Grocers' and Postal.....New list net
"The Standard" Portables.....45%
"The Standard" R. R. and Wagon....50%

Scrapers—

Box, 1 Handle .....doz $2.25@2.75
Box, 2 Handle.....doz. $3.75@4.00
Ship, No. 1, doz. $3.50; No 2, $2 25@2.40
Adjustable Box Scraper (S. R. & L. Co.) $6.00.....40&10%
Foot, W. E. Pratt Mfg. Co..... ₱ doz. $1.15@$1.25

Screens, Window and Frames—

Bonanza Window Screens...50&10&2½%
Maine Window Screen Frames 40&10&5%
Phillips' Window Screen Frames.....60%
Porter's Extension Window Screens..... 50&10%
Wabash Spring Adj. Screen.....50%

Screw Drivers—

See *Drivers, Screw*.

Screws—

Bench and Hand—

Bench, Iron..doz. 1 in., $3.00@3.25; 1¼, $3.50@3.75; 1¼, $4.00@4.50
Bench, Wood, Beech..doz. $3.50@2.75
Hand, Wood..... .....35@40%
Hand, Grand Rapids.....35%
Hand, R. Bliss Mfg Co..... .....35%

Coach, Lag and Hand Rail—

Lag, Common Point, list Oct. 1, '99..... .....65@5@....%
Coach and Lag, Gimlet Point, list Oct. 1, '99..... .....65@ ...%
Hand Rail, list Jan. 1, '81.60@10@...%

Jack Screws—

Millers Falls.....50&10&10%
Millers Falls, Roller .....50&10%
P., S. & W..... 40&3@40&10%
Sargent.....60&10@60&10&10%

Machine—

List Jan. 1, '98.
Flat or Round Head, Iron.....50%
Flat or Round Head, Brass.....50%

Set and Cap—

Set (Iron or Steel) 60%
Sq. Hd. Cap.....55%
Hex. Hd. Cap.....50%

Wood—

List Jan. 1, 1900.

Flat Head, Iron.....80%	
Round Head, Iron.....75%	
Flat Head, Brass.....77½%	
Round Head, Brass.....72½%	*Extra 10 @ 10&5 often given.*
Flat Head, Bronze.....72½%	
Round Head, Bronze.....70%	
Drive Screws.....80%	

Scroll Saws—See *Saws, Scroll*.

Scythes—

Grass Scythes:
Natural Finish.....per doz. $8.00
Pol. Blade.....per doz. $8.40
Painted or Bronzed..per doz. $8.25
Weed and Bush..per doz. $7.50@7.75

Scythe Snaths—

See *Snaths, Scythe*.

Seeders—

Raisin—

Enterprise.....25@30%

Sets—

Awl and Tool—

Brad Awl and Tool Sets:
Wood Hdle., 10 Awls doz. $2.00@2 25
Wood Hdle., 14 Awls, 6 Tools ... doz. $2.50@2.60
Aiken's Sets, Awl and Tools:
No. 20, ₱ doz. $10.00. 60&10@60&10&5%
Fray's Adj. Tool Hdls...Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
Millers Falls Adj. Tool H'dls, No. 1, $12; No. 4, $12; No. 5, $18 .... 15&10%
Stanley's Excelsior:
No. 1. $7.50; No. 2 $4.00; No. 3, $5.50..... .....30&10@40&10&10%

Garden Tool Sets—

Ft. Madison Rakes, Shovel and Hoe.... ₱ doz.....$9.00

Nail—

Round, assorted .....gro. $3.25@3.75
Octagon .....gro. $4.25@4.75
Knurled. Good..... ...gro. $6.00@6.50
Buck Brothers.....37½%
Cannon's Diamond Point, ₱ gr. $12..25%
Snell's Corrugated, Cup Pt.....50%
Snell's Knurled, Cup Pt..... ....66⅔%

Rivet—

Regular list.....70@70¢10¢5%

Saw—

Aiken's Genuine..... ₱ doz. $4.50@5.00
Aiken's Imitation ..... ₱ doz. $3.00@3.10
Atkin's Criterion.....40%
Atkin's Adjustable.....40%
Bemis & Call Co.'s Cross Cut.....30%
Bemis & Call Co.'s Plate..... .....20%
Bemis & Call Spring Hammer.....30%
Disston's Star and Mona ch..... .....25%
Hammer, Bemis & Call Co.'s new Pat.45%
Morrill's No. 1, $15.00..... .....40&20%
Nos. 3 and 4, Cross Cut, $23.00..40&20%
No. 5, Mill, $31.00..... .....40&20%
No. 10, $15.50..... .....40&20%
No. 11, $16.00..... .....40&20%
Taintor Positive, ₱ doz. $18 .....80%

Sharpeners, Knife—

Tanite Mills ₱ gross, $14.40....25@33⅓%

Shaves, Spoke—

Iron..... ....doz. $1 00@1 25
Wood..... .....doz. $1.75@2.25
Bailey's (Stanley R. & L. Co.).....50&10%
Goodell's, ₱ doz. $9.00..... .....15&10%

Shears—

Cast Iron...	*7*	*8*	*9 in.*
Best	*$16.00*	*18.00*	*20.00 gro.*
Good	*$13 00*	*15.00*	*17 00 gro.*
Cheap	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:
Best quality, Jap..60¢10¢10@70¢5%
" Nickel.....60@60¢5%
Fair qual. Jap.....75¢10@80%
" Nickel.....70¢10@75%
Tailors' Shears.....40@40¢10%
Acme Cast Shears.....40@40&5%
Heinisch's Tailors' Shears.....40@40&5%
National Cutlery Co., Nickel .....60&10%
National Cutlery Co., En Hdls...70&1 %
Seymour's, Jap..... .....70%
Seymour's Nickel..... .....60%
Seymour's Tailors' Shears..... .....40%
Wilkinson's Hedge..... .....50%
Wilkinson's Sheep..... .....15%

Tinners' Snips—

Forged Handles, Steel Blades..20@10%
Malleable Handles, Laid with Steel. 40%
Forged Handles, Steel Blades, Berlin.. 40&10%
Niagara Snips..... .....40%
Seymour's..... .....40@40&5

Pruning Shears and Tools—

Diamond Edge Tree Pruners,... ₱ doz. $8
Disston's Combined Pruning Hook and Saw, ₱ doz. $18.00.....25@25&10%
Disston's Pruning Hook, ₱ doz. $12.00 ..... 25@25&10%
John T. Henry Mfg. Company:
Pruning Shears all grades.....50&5%
Orange Shears.....50&10%
Grape..... .....50&10%
Tree Pruners.....75%
P., S. & W. Co.....33⅓@33⅓&10%
Seymour's.....60&10&10@70&5%

Sheaves—Sliding Door—

Stowell's Anti-Friction..... .....50%
Patent Roller..... ..60&10@60&10&5%
Patent Roller Hatfield's, Sargent's list, 80&10@80&10&7%
Reading..... ..... 70&10@75%
R. & E..... .....45&10%
Wrightsville, Hatfield Pattern.....80%

Sliding Shutter—

Reading list..... .....70&10¢ 75%
R. & E..... .....60@60&10%
Sargent's list..... .....50&5@50&10&5%

Shells—

Shells, Empty—

Brass Shells, Empty:
First quality, all gauges.....60&5%
Club, Rival, Climax, 10 and 12 gauge .. 65&5%
Paper Shells, Empty:
Club, Rival, Climax, Ideal, 14, 16 and 20 gauge ($7.50 list).....30&10&5%
Club, Rival, Climax, League, 10 and 12 gauge..... 33⅓&5%
Acme, Leader, New Rapid, Ideal, Smokeless, 10, 12, 16 and 20 gauge, 33⅓&10&5%
Trap and Metal Lined, 10, 12, 16 and 20 gauge..... 33⅓&10&5%
Primrose Club, Blue Rival, Yellow Rival, New Climax, 10, 12, 16 and 20 gauge..... 20%
High Base, Nitro, Repeater, Defiance, New Victor, 10, 12, 16 and 20 gauge 15%

Shells, Loaded—

Loaded with Black Powder..... 40&5%
Loaded with Nitro Powder..... 40¢10¢10&5%

Shoes, Horse, Mule, &c.—

Factory Shipments:
Horse and Mule, per keg.....$3.75
Burden's, all sizes..... .....$3.70
Bryden, Phœnix, Perkins, &c..... .....$3.75
Diamond State, Shoenberger, Crescent, &c. $3.75..... .....5%
NOTE—*See Trade Report.*

Shot—

Drop, up to B, 25-lb. bag...$1.40@1.50
Drop, up to B. 5-lb. bag ..... .35
Drop, B and larger, 25-lb. bag ..... $1.85@1.75
Drop, B and larger, 5-lb bag. .35
Buck, 25 lb. bag.... .....$1.65@1.75
Buck, 5-lb. bag ..... .35
Chilled, 25 lb. bag.....$1.65@1.75
Dust Shot, 25 lb. bag.....$2.00@2.10
Dust Shot, 5-lb bag..... ... .50

Shovels and Spades—

No. 2, Polished, Sq. or Rd. Point, D or L Handle:

	A1, 1st Grade.	*B2, 2d Grade*
Plain Back....	*$10.50*	*$9 60*
Strap Back....	*9.90*	*9 00*
Cleveland Pat'n	*10.20*	*9.30*

	C2, 3d Grade.	*D1, 4th Grade*
Plain Back....	*$8.70*	*$8.10*
Strap Back....	*8.10*	*7.50*
Cleveland Pat'n	*8.40*	*7.80*

All other sizes add 30c doz.
Black deduct 30c doz.
Note.—The above are the regular Association prices to small retailers, but are often shaded by jobbers 25@50 cents.

Shovels and Tongs—

Brass Head.....60&5@60&10%
Iron Head.....60&5@60&10%

Sieves and Sifters—

Hunter's Imitation, gro. $11.00@12.00

Buffalo Metallic Blued, S. S. & Co., ₱ gr.:

14&16	16&18	18&20
$12.90	$13.80	$15.00

Eclipse.....₱ gr. $10.00
Electric Light.....₱ gr. $12.00
Hunter's Genuine.....₱ gr. $12.50
Shaker (Barler's Pat.) Flour Sifters, ₱ doz., $9.00.....95%

Sieves, Wooden Rim—

Nested, 10, 11 *and* 12 *Inch.*
Mesh 18, Nested, doz.....*$0.75@0.80*
Mesh 20, Nested, doz..... *.85@ .90*
Mesh 24, Nested, doz ..... *1.00@1.05*

Sinks—

Cast Iron—

Low list.....50&10@60%

NOTE.—*The low list is now generally used, but some jobbers use high list.*

Wrought Steel—

Columbus Galv'd and Enameled..60&5%
Columbus, Painted.....45%
L. & G.....50%

Skeins, Wagon—

Cast Iron.....70@70&10%
Malleable Iron.....40&10@50%
Steel.....35@35&5%
I. L. & B. Co. Steel.....35%

Slates—

"D" Slates.....50&10@50&10&10%
Unexcelled Noiseless Slates.....
60&6 tens@60&6 tens&5%
Wire Bound.....40&10@50%
Double Slates, add $1 case, net.

Slaw Cutters—See *Cutters.*

Snaps, Harness—

German.....40@40&10%

Covert Mfg. Co.:
Derby.....35&2½
High Grade.....45&2½
Jockey.....40&2½
Trojan.....45&2½

Covert's Saddlery Works:
Banner.....60&10%
Crown.....60&10%
Triumph.....60&10%

W. & E. T. Fitch Co.:
Bristol.....40&10%
Empire.....50&5%
German.....40%
National.....50&5%
Perfect.....45%
Clipper.....50&5%
Champion.....40%
Security.....40%
Victor.....60&5%

Oneida Community:
Solid Steel.....65@65&10%
Solid Swivel.....65&1 @65&10&10%
Sargent's Patent Guarded.....
60%&60%&10%

Snaths—

Scythe.....45&5%

Snips, Tinners'—See *Shears.*

Soldering Irons—

See *Irons, Soldering.*

Spoke Trimmers—

See *Trimmers, Spoke.*

Spoons and Forks—

Silver Plated—

Flat Ware.....50&10@60&10%
Wm. Rogers M'f'g. Co.....50&10%

Miscellaneous—

German Silver .....60&10%
Wm. Rogers Mfg. Co.:
18% German Silver.....60%
Rogers' Silver Metal.....50&10%

Springs—

Door—

Gem (Coil).....20%
Star (Coil).....30%
Torrey's Rod, 39 in....₱ doz. $1.10@1.25
Warner's No. 1, ₱ doz. $1.50; No. 2, $3.40.....55&5&10%
Victor (Coil).....60&10@60&10&5%

Carriage, Wagon, &c.

1¼ in and wider...Blk. Hf Brt, Brt, Tested and Temp 5½ 5¾ *6c lb*
Oil Tested and Tempered..... 6½ 6¾ *7c lb*
Cliff's Bolster Springs.....35%
Cliff's Seat Springs.....₱ pair 55¢

Sprinklers, Lawn—

Enterprise.....25@30%
Philadelphia No. 1, ₱ doz. $12; No. 2, $15; No. 3, $24.....30%

Squares—

Nickel plated.... } *List Jan. 5, 1900*
Steel and Iron... } 70@70&5@.....%
Rosewood Hdl. Try Square and T-Bevels.....60&10&10@70%
Iron Hdl. Try Squares and T-Bevels.....40&10@40&10&10%
Disston's Try Sq. and T-Bevels....60&10%
Winterbottom's Try and Miter....50&10%

Squeezers—

Lemon—

Wood, Common, gro., No. 0, $5.25 @$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap.....doz. *$2.60@2.75*
Good Grade.....doz. *$3.00@3.50*
Tinned Iron.....doz. *$0.75@1.25*
Iron, Porcelain Lined doz. $2.90@3.25
Jennings' Star.....₱ doz. $1.85@1.90
King.....₱ doz. $2.00

Staples—

Barbed Blind.....lb. 9@10c
Electricians', Association list..75&10%
Fence Staples, same price as Barbed Wire. See Trade Report.
Poultry Netting.....80&10%
Grand Crossing Tack Co.'s list....75&10%

Steels, Butchers'—

Dick's.....40%
Foster Bros'.....30%
C. & A. Hoffmann's.....40%
Nichols Bros.....50%

Steelyards.....25@25&10%

Stocks and Dies—

Blacksmiths'.....40%
Gardner.....50%
Green River.....35%
Lightning Screw Plate.....35%
Little Giant.....25%
Reece's New Screw Plates.....35@30%
Curtis Reversible Ratchet Die Stock.25%

Stone—

Scythe Stones—

Pike Mfg. Co., list '95-'96.....33⅓%
Cleveland Stone Co., list Nov., '92..33⅓%

Oil Stones, &c.

Pike Mfg. Co.:
Hindostan No. 1, ₱ b...8¢
Sand Stone.....5¢ } 33⅓@
Turkey Oil Stone, Extra, 5 to 9 in.....80¢ } 33⅓&10%
Turkey Slips.....$1.50
Lily White Washita.....60¢
Rosy Red Washita.....60¢
Washita Stone, Extra.....50¢
Washita Stone, No. 1.....40¢
Washita Stone, No. 2.....30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Arkansas Stone, No. 1, 8 to 5 in. $2.80
Arkansas Stone, No. 1, 5½ to 8 in. $3.50
33⅓@33⅓&10%
India Oil Stones.....25@33⅓%
Tanite Mills:
Emery Oil, ₱ doz. $5.00.....50@60%

Stoners—

Cherry—

Enterprise.....25@30%

Stops, Bench—

Millers Falls.....15&10%
Morrill's...₱ doz., No. 1, $10.00; No. 2, $11.00, 40&20%

Stops, Window—

Ives' Patent.....25&5%
Taplin's.....45%
Wilcox, Steel, per doz., $0.00.....50%

Stove Boards—

See *Boards, Stove.*

Stove Polish—See *Polish, Stove.*

Straps, Box—

Cary's Universal, case lots.....20&10%

Stretchers, Carpet—

Cast Iron, Steel Points....doz. 55@65c
Cast Steel, Polished.....*doz. $2.25*
Socket.....*doz. $1.75*

Stuffers, Sausage—

Miles' Challenge, ₱ doz. $20...50@50&5%
Enterprise Mfg. Co.....25@25&7½%
National Specialty Mfg. Co., list Jan. 1, '97.....30%

Tacks, Brads, &c.—

See *Trade Report, List Jan. 15, '99.*

Carpet Tacks:
American Blued.....90@90&10%
American Tinned.....90@90&10%
American Cut Tacks.....
85&10@85&10&10%
Swedes Iron Tacks.....90@90&10%
Swedes Upholsterers' Tacks, ...
90&20@90&25%
Gimp Tacks.....90&20@90&25%
Lace Tacks.....90&30@90&25%
Trimmers' Tacks.....90@90&10%
Looking Glass Tacks.....70@70&10%
Bill Posters' and Railroad Tack....
90&20@90&25%
Hungarian Nails.....80&5@80&15%
Common and Patent Brads.....70&5%
Trunk and Clout Nails.....
75&5@75&10&5%

NOTE.—*The above prices are for straight Weights.* An extra 5% is given Star Weights** and an extra 10&5% on Standard Weights.****

Miscellaneous—

Double Point Tacks.....9¢ *4 or 5 tens*
Steel Wire Brads, R. & E. Mfg. Co.'s list.....50&10@60%

See also *Nails, Wire.*

Tanks, Oil—

Emerald, S. S. & Co.....30-gal. $3.20
Emerald, S. S. & Co.....60-gal., $4.00
Queen City S. S. & Co., 0-gal.....$3.50
Queen City S. S. & Co., 60-gal.....$4.25

Tapes, Measuring—

American Asses' Skin.....40&10@50%
Patent Leather.....25@30&5%
Steel.....40@40&5%
Chesterman's.....25@25&5%
Eddy's Steel.....40@40&5%
Eddy's Metallic.....33⅓@33⅓&5%
Keuffel & Esser Co., Steel and Metallic, Lower list, 1899.....35%
Lufkin's Steel.....33⅓@35%
Lufkin's Metallic.....30&5%

Thermometers—

Tin Case.....*80@80&10%*

Ties, Bale—Steel.

Standard Wire.....*50&10&5%*

Ties, Wall—

Cleveland, Steel.....₱ 1000, $10.00

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.—See *Benders and Upsetters, Tire.*

Tobacco Cutters—

See *Cutters, Tobacco*

Tools—

Coopers'—

L. & I. J. White.....20@20&5%

Saw—

Atkins' new list.....40%
Simonds' Improved.....33⅓%
Simonds' Crescent.....25%

Ship—

L. & I. J. White.....25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Game—

Oneida Pattern.....*70&10@75&10%*
Newhouse.....45@50%
Hawley & Norton.....65&5@70%
Victor (Oneida Pattern).....75@75&10%
Star (Blake Pattern).....65&10@70&5%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes.9@10c
Mouse, Round or Square Wire.....
doz. $0.85@1.00

Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, ₱ doz. $12.00; case of 24 $10.50
No. 3, Rat, ₱ doz. $5.50; case of 50 $5.00
No. 3½, Rat, ₱ doz. $4.50; case of 72 $4.00
No. 4, Mouse, ₱ doz. $3.50; case of 72 $2.75
No. 5, Mouse, ₱ doz. $2.75; case of 150 $2.25

Schuyler's Rat Killer, No. 1, ₱ gr. $30.00; No. 2, ₱ gr. $30.00; Mouse, No. 3, $18.00.....50%
Out o' Sight, Mouse, No. 1, ₱ doz. 60¢; Rat, No. 2, $1.25; Mole, $6.00; Gopher, $1.50; Stop Thief, No. 1, $1.25; No. 2, $1.50.

Fly—

Balloon, Globe or Acme.....
doz. $1.15@1.25; gro. $12.00@14.00
Harper, Champion or Paragon ...
doz. $1.25@1.40: gro. $13.50@15.00

Trimmers, Spoke—

Bonney's Nos. 1 and 2.....40%
Stearns'.....25%

Trowels—

Diston Brick and Pointing.....30%
Diston Plastering.....25%
Diston "Standard Brand" and Garden Trowels.....40%
Never-Break steel Garden Trowels.....
gro. $7.00
Peace's Plastering.....30%
Rose Brick and Plastering.....25&5%
Woodrough & McParlin, Plaster'ring.25&10%

Trucks, Warehouse, &c.—

B. & L. Block Co.'s list.....40%
Daisy Stove Trucks, Improved pattern ₱ doz. $21.00

Tubs, Wash—

	No. 1	2	3
Galvanized, per doz.	*$5.00*	*5 50*	*6.00*

Galvanized S. S. & Co., with Wringer Attachment, ₱ doz., No. 10, $7.25
No. 20, $7.75; No. 30.....$8.25

Twine—

Binder—

Carload lots f o b. New York, Philadelphia or Boston.
White Sisal. 500 ft. to lb .per lb. 11¼c
Standard, 500 ft. to lb....per lb. 11¼c
Manila. 600 ft. to lb ....per lb. 14¼c
Pure Manila, 650 ft. to lb per lb 15¾c
Less than carloads add ¼¢ per lb.

Miscellaneous—

Flax Twine—	*BC*	*B.*
No. 9, ¼ and ½-lb. Balls	*22c*	*26c*
No. 12, ¼ and ½-lb. Balls	*19c*	*22c*
No. 18, ¼ and ½-lb. Balls	*16c*	*19c*
No. 24, ¼ and ½-lb. Balls	*16c*	*19c*
No 36, ¼ and ½-lb. Balls	*15c*	*18c*

Chalk Line, Cotton, ½-lb. Balls.....
18@20c
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....*7@8c*
Cotton Wrapping, 5 Balls to lb ...
9@16c
American 2-Ply Hemp, ¼ and ½-lb. Balls.....*12@13c*
American 3 Ply Hemp, 1-lb. Balls..
12@13c
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine).....*10c*
India 3-Ply Hemp, 1-lb. Balls.....*10c*
India 3-Ply Hemp, 1½-lb. Balls.....*9c*
2, 3, 4 and 5-Ply Jute, ½-lb. Balls.....
8@9c
Mason Line, Linen, ½-lb. Balls..*15c*
No. 264 Mattress, ¼ and ½-lb. Balls.35c
Wool.....*7c*

Vises—

Solid Box.....*40&10@*.....%
Bonney's Saw Vises.....40&10%

Parallel—

Athol Machine Co.:
Simpson's Adjustable.....40%
Standard.....40%
Amateur.....25%
Bonney's.....40&10%
Fisher & Norris Double Screw....15&10%
Hollands'.....40@40&10%
Lewis Tool Co.....20@30%
Massey's Perfect.....15@20%
Massey's Clincher.....30@40%
Merrill's.....20%
Miller's Falls.....low list 10%
Parker's:
Victor.....20@25%
Regulars.....20@25%
Vulcan's.....40@45%
Combination Pipe.....55@60%
Prentiss.....20@25%
Sargent's.....40%
Simpson's Adjustable.....40%
Snediker's X. L.....20@25%
Stephens'.....20@25%
Toles' Woodworking.....25%
Van, W. & W. Hdw. Co.....40%

Saw Filers—

Bonney's, No. 1, $13; No. 3, $16.50&10%
Disston's D 8 Clamp and Guide, ₱ doz $30.....25%
Reading.....40&10%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3.....30&7½%

Miscellaneous—

Bignall & Keeler Combination Pipe Vise.....60%

Parker's Combination Pipe:
87 Series.....60%
187 Series.....60&5%
No. 870.....40%

Wads—Price Per M.

B. E., 11 up.....*60c*	Dis. 20&5%
B. E., 9 and 10.....*70c*	
B. E., 8.....*80c*	
B. E., 7.....*80c*	
P. E., 11 up.....*$1.00*	
P. E., 9 and 10.....*1.25*	
P. E., 8.....*1.50*	
P. E., 7.....*1.50*	
Ely's B. E., 11 and larger..*$1.70@1.75*	
Ely's P. E., 12 to 20.....*$3.00@3.25*	

Wagon Jacks—

See *Jacks, Wagon.*

Ware, Hollow—

Aluminum—
S. S. & Co. Reduced List.....40%

Cast Iron, Hollow—

Stove Hollow Ware:
Ground.....*60@60&7½%*
Unground.....*65@65&10%*
White Enameled Ware:
Moslin Kettles ..*75&10@75&10&5%*
Boilers and Saucepans...*55@55&5%*
Tinned Boilers and Saucepans.....
55@55&5%

See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware, list July '99.40%
Granite Ware, list Jan. 1, '94, revised Jan. 2, '95.....40&10%
Second Quality, Agate Nickel Steel..65%
Second Quality, Granite.....
70&10@70&10&10%
Iron Clad:
Peppered Ware, high list.....70%
Princess Ware, special list.....33⅓%
Mottled Ware, high list.....75%
Never Break Enameled....50&5@50&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch.....	*6*	*7*	*8*	*9*
Each.....	*50c*	*55c*	*60c*	*70c*

Steel Hollow Ware.

Avery Spiders & Griddles.....65@65&5%
Avery Kettles.....60%
Porcelained.....50&5@50&10%
Never Break Spiders and Griddles.....
65@65&5%
Never Break Kettles.....60@60&10%
Solid Steel Spiders & Griddles.....65&5%
Solid Steel Kettles.....60%
Solid Steel Ware, Enameled.....50&5%

Silver Plated Hollow—

William Rogers Mfg. Co.....40&10%

Washboards—

Solid Zinc:	₱ doz
Crescent, family size, bent frame	$3.00
Red Star, laundry size, stationary protector	$4.25
Double Zinc Surface:	
Saginaw Globe, family size, stationary protector	$2.65
Wilson, family size, bent frame	$2.75
Single Zinc Surface:	
Naiad protector, family size, open back perforated	$2.40
Saginaw Globe, protector, family size, ventilated back	$2.25
Wilson, bent frame, family size, ventilated back	$2.25

Washers—
Leather, Axle—
Solid.....80&10&10@85%
Patent.....85@85&5%
Coil: ⅞ 1 1⅛ 1¼ Inch.
19c 13c 14c 16c per 100
Iron or Steel—
Size bolt ... 5-16 ⅜ ½ ⅝ ¾
Washers....$6.20 5.20 4.00 3.80 3.60
In lots less than one keg add ¼c per lb., 5-lb. boxes add ½c to list.
NOTE—Jobbers' prices generally lower than manufacturers'.

Washer Cutters—
See *Cutters, Washer.*

Washing Machines—
See *Machines, Washing.*

Water Coolers—
See *Coolers, Water.*

Weaners—
Tyler's New Hatter—No. 1 ₱ doz. $3.45; No. 2, $3.70; No 3, $4.00; No 4 $4 80
Tyler's Safety—Nos. 1 and 2, ₱ doz $3.70; No. 3, $2.00; No. 4, $2 30.

Wedges—
Oil Finish.....lb. 4@4¼c
Axe Finish.....lb. 4¼@4½c

Weights, Sash—
Eastern prices.....$25.00@$27.00
Western prices.....$20.00@$22.50
NOTE—*There is a wide difference in prices East and West, and some Foundries are naming lower prices than the above.*

Well Buckets, Galvanized
See *Pails, Galvanized.*

Wheels Well—
8-in, $1 75@3.00; *10-in.*, $2.25@3.60; *12-in.*, $2.75@3.25; *14-in.*, $4 00@4.50

Wire and Wire Goods—
Brt. and Ann., 6 to 9.....65@65&5%
Brt. and Ann., 10 to 18.....65&7½@67½&5%
Brt. and Ann., 19 to 26.....72½&2½@72½&7½%
Brt. and Ann, 27 to 36.....72½&7½@72½&10%
Cop'd and Galv, 6 to 9.....60@60&5%
Cop'd and Galv, 10 to 18.62½@62½ 5%
Tinned. 6 to 14.....67½&2½@67½&5%
Tinned. 15 to 18.....65@67½&5%
Annealed Wire on Spools.....60&10@60&10&5%
Brass, list Feb. 26, '96.....25%
Copper, list Feb. 26, '96.....15%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to £, 40%
Wire Clothes Line, see *Lines.*
Wire Picture Cord, see *Cord.*

Bright Wire Goods—
Iron and Brass, list July 1, 1899....80&10@80&10&10%

Wire Cloth and Netting—
Galvanized Wire Netting.....75&10@75&10&7½%
Painted Screen Cloth per 100 ft.....$1.50@....
Hardware Grade, 2 to 18 mesh.....sq. ft. 2½@3c
Hardware Grade, 20 x 20 mesh..sq ft 3@3½c
Galv Hardware Grade, 2 to 5 mesh..sq. ft 3¼@3¾c
Galv Hardware Grade, 6 to 8 mesh...sq. ft. 4@4½c

Wire Barb—See *Trade Repor*
Wire, Rope—See *Rope, Wire.*
Wrenches—
Agricultural.....70&10@75&10%
Baxter's S.....60&10%
Coes' Genuine.....25&10&5&5&3%
Coes' "Mechanics'"..25&10&10&5&5&3%
Acme.....60&10%
Aiken's Pocket (Bright).....$2.00@3.20
Alligator.....60&10&10%
Bemis & Call's:
Adjustable S.....35&5%
Adjustable S Pipe.....40%
Brigg's Pattern.....30&10%
Combination Black.....40&5%
Combination Bright.....40%
Cylinder or Gas Pipe.....55%
Extra Heavy.....45%
Merrick's Pattern.....50%
No. 3 Pipe, Bright.....55%
Bindley Automatic.....30%
Boardman's.....33⅓%
Bull Dog, W. & B.....60&10&10%
Donohue's Engineer.....40&10%
Eagle.....50&10%
Hercules.....70%
Solid Handles, P. S. & W.....40&10%
Stevenson.....60&10&10%
Stillson's.....55%

Wrought Goods—
Staples, Hooks, &c., list March 17 '92.....85%

Yokes, Neck—
Covert Saddlery Works Trimmed.60&5%
Covert Saddlery Works, Neck Yoke Centers.....70%

Yokes, Ox, and Ox Bows—
Fort Madison's Farmers & Freighters'.. list not

Zinc—
Sheet.....lb 7c@7¼c

PAINTS, OILS AND COLORS.—Wholesale Prices.

White Lead, Zinc, &c.
Lead, Foreign white, in Oil... 7¼@ 9¾
Lead, American White, in Oil:
Lots of 500 ℔ or over.....@ 6¼
Lots less than 500 ℔.....@ 7
Lead, White, in oil, 25 ℔ tin pails, add to keg price.....@ ⅛
Lead, White, in oil, 12½ ℔ tin pails, add to keg price.....@ 1
Lead, White, in oil, 1 to 5 ℔ assorted tins, add to keg price..@ 1¼
Lead White, Dry in bbls.....@ 5½
Lead. American. Terms: On lots of 500 lbs. and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.
Zinc, American, dry.....₱ ℔ 4¾@ 5¼
Zinc, Paris, Red Seal.....@ 8½
Zinc, Paris, Green Seal.....@ 9½
Zinc, Antwerp Red Seal.....@ 7½
Zinc, Antwerp, Green Seal.....@ 9
Zinc, V. M. in Poppy Oil, G. Seal lots of 1 ton and over.....@11¼
lots less than 1 ton.....@12½
Zinc, V. M. in Poppy Oil, Red Seal, lots of 1 ton and over.....@10¼
lots of less than 1 ton.....@11¼
DISCOUNTS.—V. M. French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1%; 25 bbls., 2%; 50 bbls., 4%. No discount allowed on less than 10 bbl. lots.

Dry Colors.
Black, Carbon.....₱ ℔ 7 @20
Black, Drop, Amer.....2½@ 4
Black, Drop, Eng.....5 @10
Black, Ivory.....9 @20
Lamp, Com.....3 @ 5
Blue, Celestial.....₱ ℔ 5½@ 8
Blue, Chinese.....35 @40
Blue, Prussian.....30 @38
Blue, Ultramarine.....7 @35
Brown, Spanish.....½@ 1
Brown, Vandyke, Amer.....1½@ 2½
Brown, Vandyke, Foreign.....2½@ 3½
Carmine, No. 40.....₱ ℔ $2.15@2.75
Green, Chrome, ordinary.....5 @ 6
Green, Chrome, pure.....19 @25
Lead, Red, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over.....@ 6¼
Lots less than 500 ℔.....@ 7
Litharge, bbls. ½ bbls. and kegs:
Lots 500 ℔ or over.....@ 6¼
Lots less than 500 ℔.....@ 7
Ocher, French Washed.....1½@ 2½
Ocher, Dutch Washed.....4½@ 5
Ocher, American...₱ ton $10.00@15.00
Orange Mineral, English..₱ ℔ 9½@12
Orange Mineral, French.....11½@11½
Orange Mineral, German.....9½@12
Orange Mineral, American....8½@ 9½
Red, Indian, English.....8½@ 8½
Red, Indian, American.....3 @ 3½
Red, Turkey, English.....5 @10
Red, Tuscan, English.....7 @10
Red, Venetian, Amer..₱ 100 ℔. 80@1.10
Red Venetian, English, ₱ ℔....1.80@2.10
Sienna, Italian, Burnt and Powdered.....₱ ℔ 3½@ 6
Sienna, Ital., Raw, Powd.....3½@ 6
Sienna, American, Raw.....1½@ 2
Sienna, American, Burnt and Powdered.....₱ ℔ 1½@ 2
Talc, French.....₱ 100 ℔ $1.25@1.50
Talc, American.....90 @1.10
Terra Alba, French, ₱ 100 ℔..80 @1.00
Terra Alba, English.....85 @1.00
Terra Alba, American No. 1....65 @70
Terra Alba, American No. 2....45 @50
Umber, Turkey, Bnt. & Pow. ₱ ℔ 2½@ 3½
Umber, Turkey, Raw & Powd. 2½@ 3½
Umber, Bnt. Amer.....1½@ 2
Umber, Raw, Amer.....1½@ 2
Yellow, Chrome.....10½@25
Vermilion, American Lead.....10 @25
Vermilion, Quicksilver, bulk..@69
Vermilion, Quicksilver, bags....@70
Vermilion, English, Import..71 @72
Vermilion, Chinese....86 @95

Colors in Oil.
Black' Lampblack.....10 @14
Blue, Chinese.....36 @40
Blue, Prussian.....32 @36
Blue, Ultramarine.....12 @16
Brown, Vandyke.....9½@13
Green, Chrome.....10 @14
Green, Paris.....@24
Sienna, Raw.....10 @13
Sienna, Burnt.....10 @13
Umber, Raw.....9½@12
Umber, Burnt.....9½@12

Miscellaneous.
Barytes, Foreign, ₱ ton....$19.00@21.00
Barytes, Amer. floated.....19.00@20.00
Barytes, Crude.....9.00@10.00
Chalk, in bulk.....₱ ton 2.15@ 2.25
Chalk, in bbls.....₱ 100 ℔ 35@
China Clay, English..₱ ton 11.00@17.00
Cobalt, Oxide.....₱ 100 ℔ 2.00@ 2.10
Whiting, Common. ₱ 100 ℔ .42@ .52
Whiting, Gilders.....54@ .64
Whiting, extra Gilders'....53@ .58

Putty.
In bulk.....$1.90
In bladders.....2.40
In cans, 12 ℔ to 25 ℔.....2 50
In cans, 1 ℔ to 5 ℔.....3 60

Spirits Turpentine.
In Southern bbls.....@57
In machine bbls.....@57½

Glue.
Low Grade.....₱ ℔ 13 @15
Cabinet.....13 @16
Medium White.....14 @16
Extra White.....16 @25
French.....12 @25
Irish.....13 @15

Animal, Fish and Vegetable Oils.
Linseed, City, raw.....₱ gal. 59 @60
Linseed, City, boiled.....61 @62
Linseed, State and West'n, raw 57 @58
Linseed, raw Calcutta seed.....@71
Lard, Prime.....52 @54
Lard, Extra No. 1.....45 @47
Lard. No. 1.....43 @48
Cotton-seed, Crude.....33 @34
Cotton-seed, Summer Yellow, prime.....36 @37
Cotton-seed Summer Yellow, off grades.....35½@
Sperm, Crude.....@
Sperm, Natural Spring.....@
Sperm, Bleached Spring.....@
Sperm, Natural Winter.....58 @60
Sperm, Bleached Winter.....63 @65
Whale, Crude.....@
Whale, Natural Winter.....@47
Whale, Bleached Winter.....@49
Menhaden, Crude, Sound.....@
Menhaden, Light S rained.....31 @32
Menhaden, Bleached Winter..35 @
Menhaden, Extra Bleached.....@37
Tallow, prime.....53 @55
Cocoanut, Ceylon.....5½@ 6
Cocoanut, Cochin.....6¼@ 6½
Cod, Domestic.....33 @35
Cod, Newfoundland.....36 @38
Red Elaine.....38 @40
Red Saponified.....₱ ℔ 5¼@ 5½
Olive, Italian, bbls.....60 @61
Neatsfoot, prime.....50 @59
Palm, prime, Lagos.....₱ ℔ 6½@

Mineral Oils.
Black, 30 gravity, 25@30 cold test.....₱ gal. 11 @11½
Black, 29 gravity, 15 cold test. 12 @12½
Black, summer.....10½@11
Cylinder, light filtered.....15 @17½
Cylinder, dark filtered.....13 @18
Paraffine, 903-907 gravity.....15 @15½
Paraffine, 903 gravity.....14 @14½
Paraffine, 883 gravity.....12½@13
Paraffine, red, No. 1.....15 @15½
In small lots ½¢ advance.

THE IRON AGE.

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CURRENT METAL PRICES.

MARCH 21, 1900.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from Store—

Common Iron: Duty, Round, 0.6¢ ₱ ℔; Square, 0.8¢ ₱ ℔

1 to 1⅞ in. round and square	₱ ℔ 2.40@2.60¢
1¼ to 4 in. x ⅜ to 1 in.....	
Refined Iron:	
1 to 1⅞ in. round and square.....	₱ ℔ 2.50@2.60¢
1⅛ to 4 in. x ⅜ to 1 in.....	
1¼ to 4 in. x ¼ to 5-16.....	₱ ℔ 2.70@2.90¢
Rods—⅜ and 11-16 round and square.	₱ ℔ 2.70@2.90¢
Angles:	Cts ₱ ℔
3 in. x ¼ in. and larger.....	3.10¢
3 to 3½ in. x 3-16 in.....	3.10¢
1¼ to 3 in. x ¼ in	3.25¢
1¼ to 2¾ in. x 3-16 in and thicker.....	3.15¢
1 to 1¼ in. x 3-16 in.....	3.25¢
1 to 1¼ x ⅛ in.....	3.35¢
⅞ x ⅛ in.....	3.60¢
⅝ x ⅛ in.....	3.65¢
⅝ x ⅛ in.....	4.50¢
½ x 3-32 in.....	5.00¢
Tees:	
1 in.....	3.55¢
1¼ to 2¾ in.....	3.45¢
3 in. and larger.....	3.25¢
Beams.....	3.50¢
Channels, 3 in. and larger.....	3.50¢
Bands—1¾ to 6 x 3-16 to No. 8.....	₱ ℔ 3.10¢
"Burden's Best" Iron, base price.....	₱ ℔ 3.60¢
Purden's "H. B. & S. Iron, base price.....	₱ ℔ 3.40¢
"Ulster".....	₱ ℔ 3.60¢
Norway Bars.....	4¼@4¾¢
Norway Shapes.....	4½@5 ¢

Merchant Steel from Store—

	per ℔
Open Hearth and Bessemer Machinery ...	2.80 to 2.90¢
Toe Calk, Tire and Sleigh Shoe.....	3.75@4.00¢
Best Cast Steel, base price in small lots.....	8 ¢
Best Cast Steel Machinery, base price in small lots.....	6 ¢

Soft Steel Sheets—

¼ inch.....	3.20¢	No. 14.....	3.30¢
3-16 inch.....	3.25¢	No. 16.....	3.40¢
No. 8.....	3.20¢	No. 18.....	3.45¢
No. 10.....	3.20¢	No. 20.....	3.50¢
No. 12.....	3.25¢	No. 22.....	3.55¢

Sheet Iron from Store.

Black.

	Common American.	R. G. Cleaned American.
Nos. 10 to 16.....	₱ ℔, 3.35.....	3.35¢
Nos. 17 to 21.....	₱ ℔, 3.40.....	3.45¢
Nos. 22 to 24.....	₱ ℔, 3.45.....	3.55¢
Nos. 25 and 26.....	₱ ℔, 3.50.....	3.60¢
No. 27.....	₱ ℔, 3.55.....	3.65¢
No. 28.....	₱ ℔, 3.60	3.75¢

Russia, Planished, &c.

Genuine Russia, according to assortment..... ₱ ℔ 10½¢

Patent Planished..... ₱ ℔ A, 10½¢; B, 9½¢, net.

Galvanized.

	B. B.	B.
Nos. 10 to 16.....	₱ ℔, 12¢	70&5@70&10% off
Nos. 17 to 21.....	₱ ℔, 13¢	
Nos. 22 to 24.....	₱ ℔, 14¢	
Nos. 25 to 26.....	₱ ℔, 15¢	
No. 27.....	₱ ℔, 16¢	
No. 28.....	₱ ℔, 17¢	
No. 29.....	₱ ℔, 19¢	
No. 30.....	₱ ℔, 21¢	

36 in. 1¢ ₱ ℔ higher.

Foreign Steel from Store—

Best Cast.....	₱ ℔ 15 ¢
Extra Cast.....	₱ ℔ 18 @ 20 ¢
Swaged, Cast.....	₱ ℔ 16 ¢
Best Double Shear.....	₱ ℔ 15 ¢
Blister, 1st quality.....	₱ ℔ 13 ¢
German Steel, Best.....	₱ ℔ 10 ¢
2d quality.....	₱ ℔ 9 ¢
3d quality.....	₱ ℔ 8 ¢
Sheet Cast Steel, 1st quality.....	₱ ℔ 15 ¢
2d quality.....	₱ ℔ 14 ¢
3d quality.....	₱ ℔ 12 ¢
R. Mushet's "Special"	₱ ℔ 46 ¢
" " " Annealed	₱ ℔ 75 ¢
" " "Titanic"	₱ ℔ 19 ¢
Hobson's Choice XX Extra Best.....	₱ ℔ 35 ¢
Jessop Self Hardening.....	₱ ℔ 45 ¢
Seamans' "Nelson" Steel.....	40 ¢
Hobson Self-Hardening.....	₱ ℔ 40 ¢

METALS—

Tin—

Duty.—Pigs, Bars and Block. Free.	Per ℔
Banca, Pigs	35¢
Straits, Pigs.....	34½¢
Straits in Bars.....	35½¢

Tin Plates—

American Charcoal Plates.

Calland Grade:	
IC, 14 x 20.....	$7.50
IX, 14 x 20	9.00
Meiyn Grade:	
IC, 14 x 20.....	7.00
IX, 14 x 20.....	8.50
Allaway Grade:	
IC, 14 x 20.....	6.15
IX, 14 x 20..	7.25

American Coke Plates—Bessemer—

IC, 14 x 20 .....108 ℔.....	$5.30@5.40
IX, 14 x 20.....	6.25@6.30
IXX, 14 x 20.....	7.50@7.60

American Terne Plates—

IC, 20 x 28.....	$10.50
IX, 20 x 28.....	12.50

Tin Boiler Plates, American—

IXX, 14 x 26.....	112 sheets.....	$13.00
IXX, 14 x 28.....	112 sheets.....	14.00
IXX, 14 x 31.....	112 sheets.....	15.50

Copper—

Duty: Pig, Bar and Ingot and Old Copper free Manufactured, 2½¢ ₱ lb.

Ingot—

Lake.....	17½@17¾¢
Ansonia grade Casting.....	17@17¼¢

Sheet and Bolt—

January 19, 1900. Prices, in cents per pound. Sheet 90 x 60. Net.

Not wider than	Not longer than	And longer than	64 oz. & over, 90 lb. sheet, 30 x 60 and heavier.	32 oz. to 64 oz., 45 to 90 lb.	24 oz. to 32 oz. 18¾ to 25 lb.	16 oz. to 24 oz. 12½ to 18¾ lb.	14 oz. and 15 oz. 11 to 12½ lb.	12 oz. and 13 oz. 9½ to 11 lb.	10 oz. and 11 oz. 7½ to 9½ lb.	8 oz. and 9 oz. 6¼ to 7½ lb.	Lighter than 8 oz.
Ins.	Ins.	Ins.									
30	72	.....	20½	20½	20½	20½	21½	22½	23½	26½	29½
30	96	72	20½	20½	20½	20½	21½	23½	26½	29½	
30	.....	96	20½	20½	20½	20½	22½	26½	29½		
36	72	.....	20½	20½	20½	20½	22½	24½	27½	30½	
36	96	72	20½	20½	20½	22½	22½	26½	29½		
36	120	96	20½	20½	20½	22½	23½				
36	.....	120	20½	20½	21½	22½					
48	72	.....	20½	20½	21½	22½	24½	27½	30½		
48	96	72	20½	20½	21½	23½	25½	28½			
48	120	96	20½	21½	22½	24½	26½				
48	.....	120	20½	21½	23½	26½					
60	72	.....	20½	21½	21½	23½	26½	31½			
60	96	72	20½	22½	24½	29½					
60	120	96	20½	21½	23½	26½					
60	.....	120	20½	22½	24½	28½					
72	96	.....	20½	21½	23½	28½					
72	144	96	20½	22½	25½	30½					
72	.....	144	21½	23½	28½						
108	120	.....	21½	23½	29½						
108	.....	120	23½	24½							
wider than 108	.....	144	25½	28½							

Bolt Copper, ⅜ inch diameter and over, ₱ ℔ 20½¢

Circles, Segments and Pattern Sheets, 3¢ ₱ ℔ advance over price of sheet Copper required to cut them from.

Cold or Hard Rolled Copper 14 oz. ₱ square foot and heavier, 1¢ ₱ ℔ over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 oz. ₱ square foot, 2¢ ₱ ℔ over the foregoing prices.

All Polished Copper, 20 in. wide and under, 1¢ ₱ ℔ advance over the price for Cold Rolled Copper.

All Polished Copper, over 20 in. wide, 2¢ ₱ ℔ advance over the price for Cold Rolled Copper.

Planished Copper—

1¢ ₱ ℔ more than Polished Copper.

Copper Bottoms, Pits and Flats—

14 oz. to square foot and heavier, ₱ ℔	24½¢
12 oz. and up to 14 oz. to square foot, ₱ ℔.....	25½¢
10 oz. and up to 12 oz., ₱ ℔.....	27½¢
Lighter than 10 oz., ₱ ℔.....	30½¢

Circles less than 8 in. diameter, 2¢ ₱ ℔ additional.

Circles over 13 in. diameter are not classed as Copper Bottoms.

Copper Wire—

Hard and Soft Drawn—B. & S. Gauge.

Last March 2, 1900.

Nos...	0000 to 8	9 and 10		11 and 12
	Base	½¢		¾¢ ₱ ℔ adv.
Nos.....	13	14	15	16
	¼¢	¾¢	1¢	1¼¢ ₱ ℔ adv.
Nos.....	17	18	19	20
	1½¢	2¢	2¼¢	2¾¢ ₱ ℔ adv.

Seamless Brass Tubes—

Standard always Stubs' gauge, unless otherwise ordered.

Feb. 6, 1899. Net.

Stubs' W. G.	B. & S. W. G.	¼	5-16	⅜	7-16	½	9-16	⅝	¾	⅞	1	1¼	1½
4-11	3- 9	.....	.....	.....	.....	33	31	30	29	28	27	25	24
12	10	.....	.....	37	35	33	31	30	29	28	27	25	24
13	11	.....	.....	37	35	33	31	30	29	28	27	25	
14	12	.....	41	37	35	33	31	30	29	28	27	25	24
15	13	.....	42	38	36	33	32	31	30	30	28	26	25
16	14	.....	43	39	37	34	33	32	31	30	29	26	25
17	15	.....	44	40	38	35	34	33	32	31	30	27	26
18	16	61	46	42	39	36	35	34	32	31	30	28	27
19	17	62	47	43	40	37	36	35	34	33	32	30	29
20	18-19	64	49	44	41	39	38	37	36	35	34	32	31
21	20	65	51	46	43	41	40	39	38	37	36	35	34
22	21	7	56	48	44	42	41	40	39	38	37	37	36
23	22	76	61	50	46	44	43	42	41	40	39	39	39
24	23	81	66	53	48	46	45	44	43	41	40	40	41
25	24	86	71	56	51	49	47	46	45	43	43	44	45

Copper Bronze and Gilding Tube, 3¢ ₱ ℔ additional

Iron Pipe Sizes—Brass

⅛	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½	4	4½	5	6 inch
36	32	29	27	21	21	21	21	21	21	21	23	24	25	27	28¢₱℔

Copper, Bronze or Gilding Tubes, 3¢ ₱ ℔ additional

Brazed Brass Tubing.

(*To No.* 19, *inclusive.*) Feb. 26 1896

Brown & Sharpe's gauge standard.

	Per ℔.
Plain Round Tube, ¼ in. up to 2 in.....	$0.35
" " ⅝ " ⅞ "	.36
" " ¾ " ⅞ "	.38
" " ⅞ " 1 "	.41
" " 5-16 " ⅜ "	.48
" " ¼ " 5-16 "	.65
" " 3-16 " ¼ "	1.00
" " ⅛ " 3-16 "	1.50
Smaller than ⅛ inch.....	Special
3 inch and larger	.40
Over 3 inch to 3½ inch, inclusive	.45
Over 3½ inch	.50

Bronze and Copper, advance on Brass List, 3 cents.

Discount from list ¢..... 35@10%

Roll and Sheet Brass—

(*Brown & Sharpe Standard Gauge.*)

Common High Brass	in.	in.	in.	in.	in.	in.	in.	in.	in.
Wider than and including	2 12	12 14	14 16	16 18	18 20	20 22	22 24	24 26	
To No. 20, inclusive.	.22	.23	.25	.27	.29	.31	.33	.36	
Nos. 21, 22, 23 and 24.	.22	.24	.26	.28	.30	.32	.34	.37	
Nos. 25 and 26	.23	.24½	.27	.29	.31	.33	.35	.38	
Nos. 27 and 28	.23	.25	.28	.30	.32	.34	.35	.39	

Common High Brass	in.	in.	in.	in.	in.	in.	in.	in.
Wider than and including	26 28	28 30	30 32	32 34	34 36	36 38	38 40	
To No. 20, inclusive ..	.39	.42	.46	.50	.55	.60	.65	*
Nos. 21, 22, 23 and 24.	.40	.43	.47	.51	.56	.61	.68	
Nos. 25 and 26	.41	.44	.48	.52	.57	.63	.71	
Nos. 27 and 28	.42	.45	.49	.53	.58	.65	.75	

* Special prices not less than 80 cents.

Add ½¢ ₱ ℔ additional for each number thinner than Nos. 28 to 38 inclusive. Discount from List..... 20@25%

Wire in Coils. List February 26, 1896.

Brown & Sharpe's gauge the standard.	Com. high brass.	Low brass.	Gild's bronze and copper
All Nos. to No. 10, inclusive....	$0.23	$0.27	$0.28
Above No. 10 to No. 16.....	.23½	.27½	.28½
No. 17 and No. 18.....	.24	.28	.32
No. 19 and No. 20.....	.25	.29	.33
No. 21	.26	.30	.34
No. 22	.27	.31	.35
No. 23	.28	.32	.36
No. 24	.30	.34	.38
No. 25	.32	.36	.40
No. 26	.35	.39	.43
No. 27	.38	.42	.46
No. 28	.42	.46	.51
No. 29	.45	.49	.54
No. 30	.48	.52	.62
No. 31	.51	.55	.67
No. 32	.55	.59	.78
No. 33	.59	.63	.82
No. 34	.64	.68	.95
No. 35	.70	.74	1.30
No. 36	.76	.80	1.50
No. 37	1.00	1.04	1.70
No. 38	1.30	1.34	2.00
No. 39	2.00	2.00	3.25
No. 40	2.60	2.60	5.75

Discount, Brass Wire, 20@25%; Copper Wire, Net. List November 16, 96.

Spring Wire, 2¢ ₱ ℔ advance.

Spelter—

Duty: In Blocks or Pigs, 1¢ ₱ ℔

Western Spelter..... 5½@5¼¢

Zinc.

Duty: Sheet, 2¢ ₱ ℔.

600 ℔ casks..... 7½¢ | Per ℔ ..... 8¢

Lead.

Duty: Pigs and Bars and Old, 2½¢ ₱ ℔. Pipe and Sheets, 2½¢ ₱ ℔.

American Pig.....	5½@5¼¢
Bar.....	5¾¢
Pipe (full lengths), subject to discount 20%.....	7¢
Pipe cut lengths), subject to discount 20%.....	7½¢
Tin Lined Pipe, subject to discount 20%.....	12½¢
Block Tin Pipe, subject to discount 20%.....	45¢
Sheet (full rolls) subject to discount 20%.....	8¢
Sheet (cut rolls (subject to discount 20%.....	9¢

Old Lead in exchange, 4½¢ ₱ ℔.

Solder.

½ & ¼, guaranteed..... 21½@22¢

No. 1..... 18@20¢

Prices of Solder indicated by private brand vary according to composition.

Antimony—

Duty, ¾¢ ₱ lb.

Cookson.....	₱ ℔ 11¼
Hallett's.....	₱ ℔ 10¾
U. S.....	₱ ℔ 10@10¼¢

Aluminum—

Duty: Crude, 8¢ ₱ ℔. Plates, Sheets, Bars and Rods 13¢ ₱ ℔.

No. 1 Aluminum (guaranteed over 99% pure), in ingots for remelting:	
Small lots.....	₱ ℔ 37¢
100-℔ lots.....	₱ ℔ 35¢
No. 2 Aluminum (guaranteed to be over 90% pure), in ingots for remelting:	
Small lots.....	₱ ℔ 34¢
100-℔ lots.....	₱ ℔ 33¢

Aluminum Sheet, B. & S. gauge. 50 ℔ or more.

Wider than.....	6-in.	14-in.	24-in.
And including.....	14-in.	24-in.	30-in.
	₱ ℔.	₱ ℔.	₱ ℔
Nos. 13 to 19.....	$0.42	$0.44	$0.47
No. 20.....	.44	.46	.49
Nos. 21 to 23.....	.46	.48	.51
No. 24.....	.46	.50	.53
No. 25.....	.47	.51	.54
No. 26.....	.47	.54	.59
No. 27.....	.48	.57	.62
No. 28.....	.48	.57	.64
No. 29.....	.49	.60	.69
No. 30.....	.50	.64	.77

Note.—Lots of less than 50 ℔ 5¢ ₱ ℔ extra.

Aluminum Wire, B. & S. Gauge.

Larger than No. 9	₱ ℔ 40¢	No. 15.....	₱ ℔ 43¢
No. 9 to No. 10..	₱ ℔ 40½¢	No. 17.....	₱ ℔ 50¢
No. 11.....	₱ ℔ 41 ¢	No. 18.....	₱ ℔ 55¢
No. 12.....	₱ ℔ 41½¢	No. 19.....	₱ ℔ 60¢
No. 13.....	₱ ℔ 42 ¢	No. 20.....	₱ ℔ 65¢
No. 14	₱ ℔ 42½¢	No. 21.....	₱ ℔ 85¢

Old Metals.

Dealers' Purchasing Prices Paid in New York.

Heavy Copper.....	₱ ℔ 14 ¢
Light and Tinned Copper.....	₱ ℔ 12¾¢
Heavy Brass.....	₱ ℔ 10 ¢
Light Brass.....	₱ ℔ 7¾¢
Lead.....	₱ ℔ 4 ¢
Tea Lead.....	₱ ℔ 3½¢
Zinc.....	₱ ℔ 3¼¢
No. 1 Pewter.....	₱ ℔ 15 ¢
No. 2 Pewter.....	₱ ℔ 8 ¢
Tin Plate scrap.....	₱ ton $7.00
Wrought Scrap Iron.....	₱ gross ton $13.00@13.50
Heavy Cast Scrap.....	₱ gross ton $11.00
Stove Plate Scrap.....	₱ gross ton $7.00
Burnt Iron.....	₱ gross ton $6.00

MADE IN VARIOUS SIZES

See Our Advertisement, Issue March 1.

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WHY ARE WE LEADERS?

BECAUSE the largest consumers acknowledge the Superior quality of our

Scrap Copper, Scrap Brass, Scrap Lead, Scrap Zinc,

and all kinds of old Metals. Write for prices to

THEODORE HOFELLER & CO.,

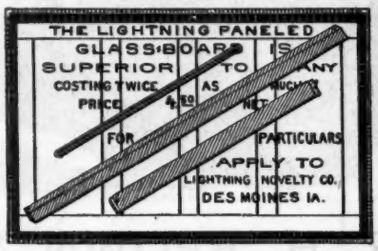
98, 100, 102 TERRACE, BUFFALO, N. Y.

All Metals Carefully GRADED and Made FREE of Iron.

COVERT'S.

1875 FARMER, N. Y., U. S. A. 1900

We Lead Them All.



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ESTABLISHED 1825.

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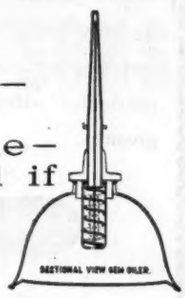
Throw the can away—
Spout 's busted—
Old story of the old oiler—
New one now—
Since the Gem oiler came—
Spout doesn't bust, and if it does—
Keep the can and get a new spout.



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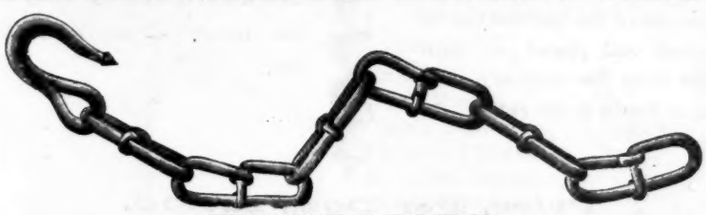
200, 202 Wood St.,

Pittsburg, Pa.

AGRICULTURAL IMPLEMENT CHAINS



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Our NIAGARA and EUREKA Weldless Chains are now largely used for manufacturing purposes. They give good satisfaction and the prices are low. Ask your jobber for them. Complete catalogue on application.

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Hardware Store Business Methods

IS A BOOK OF BRIGHT SOUND BUSINESS ADVICE.

YOU may know it all

BUT PUT A COPY IN THE HANDS OF YOUR SON OR CLERK

It will help him.

200 Pages, Illustrated.

ONE DOLLAR, POSTPAID.

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In the manufacture of Cold Drawn Seamless Steel Tubing there is but one heating (with the exception of annealing), from the original solid form to the finished tubing. This tubing could not be manufactured from material containing any flaws or physical imperfections.

Cold Drawn Tubing is the strongest, safest and most durable tubing made. It is very dense, tough and exceedingly ductile.

Ideal Tubing for compressed Air Cylinders, Pneumatic Hoists, Gas and Steam Engine Cylinders, Armature Journals, Hollow Shafting and all mechanical purposes where tubing can be used.

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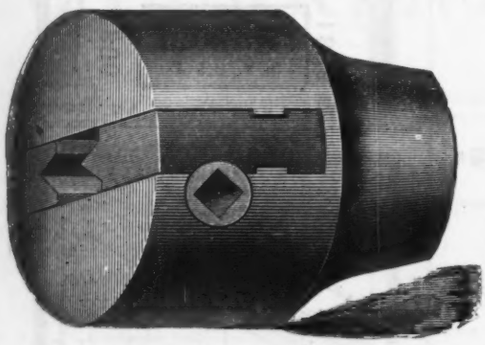
JULIAN L. YALE & CO., Rookery Bldg., Chicago.
J. J. LYNN, Fort Huron, Mich.

REID DRILL CHUCKS.



THREE SIZES.

No. 0 takes any drill from 0 to 1-2 inch inclusive.
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They are the strongest and most durable made. Drill absolutely in the center. No twisting or bending necessary if drill is straight. Can be fitted to hollow spindle lathes for working long rods.

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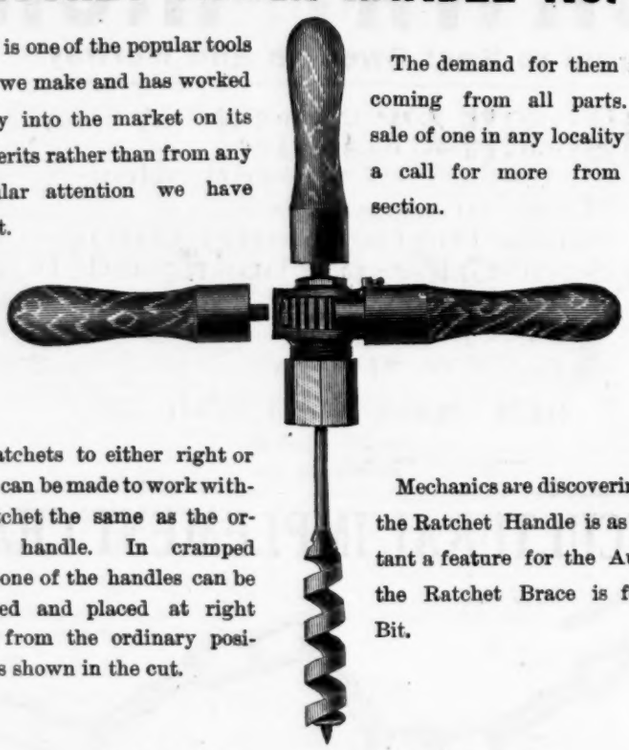
This is one of the popular tools which we make and has worked its way into the market on its own merits rather than from any particular attention we have given it.

The demand for them is now coming from all parts. The sale of one in any locality means a call for more from same section.



It ratchets to either right or left or can be made to work without ratchet the same as the ordinary handle. In cramped places one of the handles can be detached and placed at right angles from the ordinary position, as shown in the cut.

Mechanics are discovering that the Ratchet Handle is as important a feature for the Auger as the Ratchet Brace is for the Bit.

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A perfect working article, once used never without. Gives perfect satisfaction. No daubing or pieces of shell by using this Egg Opener. No competition; fast seller and a money maker. Nickel Plate, 25c.; Silver Plate, 50c. Send for discount on large quantities to

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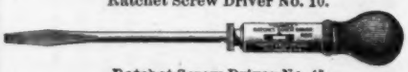
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Holds your door BACK.

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ESTABLISHED 1835.

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Butchers' Knives and Tools.
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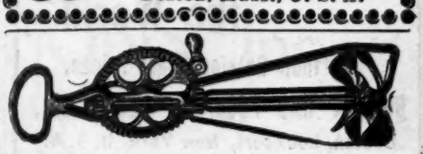

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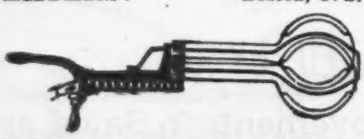

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Machinists' Tool Chests,

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Ice Tongs, Ice Axes, Saws, Scales.

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Solid Steel Pliers, Wire Cutters, Nail Pullers, Ticket Punches, Shears, Scissors, etc. Cast, Sheet Metal or Drop Forged specialties to order.

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Genuine have "Russell Jennings" stamped in full on the Round of each Bit.

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HIGH GRADE **AUGER BITS.**

(BLACK TWIST)

JOB T. PUGH, PHILADELPHIA.

THE

Ford Ship Augers.

SECOND TO NONE.

Prices Right.

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American Tool Chest Company,

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MANUFACTURERS OF

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Factory and Salesroom,

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Also Machinists' Tool Chests, empty. Tool Cabinets and Work Benches. Illustrated Catalogue and prices furnished on application.

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Griffin's Improved

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IS UNQUESTIONED.

Attractive { *IN DESIGN, IN FINISH, IN PRICE.*

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CATALOGUE FREE.

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SEAVEY'S

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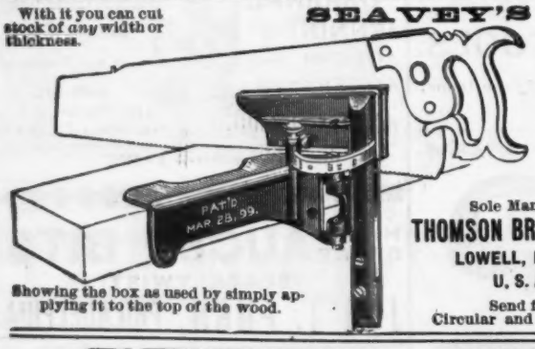
Weighs 2 lbs. No special saw needed

Simple, Light, Accurate, Low Priced.



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Sole Manufs.,
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Send for Circular and Discount.

Showing the box as *fastened* to *bench* or *horse*, with stock in position to be cut.

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We manufacture three types of Steel Wire Chains in various sizes which we can furnish plated, tinned, galvanized or japanned. Also made into Halter Chains, Traces, Kennel Chains, Dog Leads, Tieouts, Cow Ties, etc., etc. Our Plumbers' and Sash Chains are First Quality.

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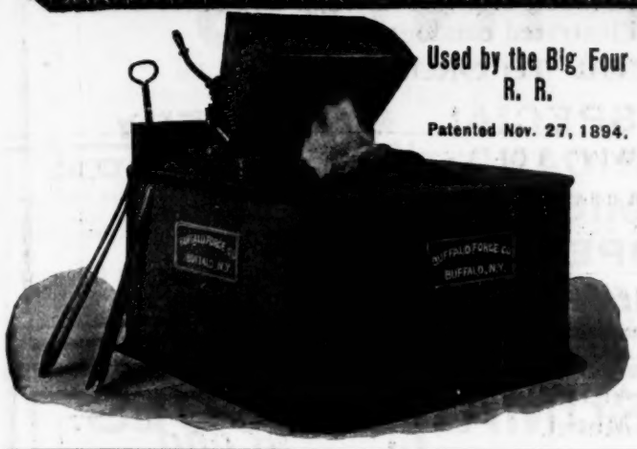

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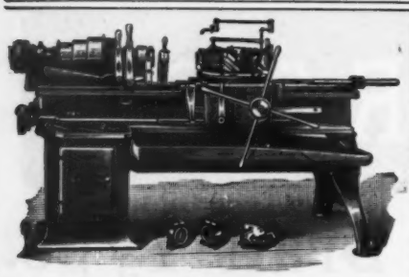

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